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Bloodstain Analysis Report

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Case Overview:

      I reviewed lab reports, police reports, court documents, consultant reports, photographs, and witness testimony related to this case. I reviewed the General Judgment (Post-Conviction), In the Circuit Court of the State of Oregon for the County of Malheur, 26 November 2019, by Sr. Judge Patricia Sullivan, Circuit Judge.

      I learned from police reports and other information that Leah Freeman went missing on June 28, 2000. She had been located, deceased, on August 3, 2000, in a wooded area about 8 miles from her last known location. Her body was in an advanced decomposition stage. Dr.

1

Olson, pathologist, was not able to determine an exact cause of death due to advanced state of decomposition but opined that death was due to homicidal violence. I learned that a right shoe later identified as belonging to Leah Freeman was found by a worker on June 28, 2000, near a cemetery in her hometown. A left shoe, later identified as Leah Freeman's, was found by Deputy Sheriff Oswald on July 5, 2000. It was several miles from the location of the body. This left shoe, according to a report by Kathy Wilcox, forensic scientist, was found to have several bloodstains on the sole. An analysis of the shoe by Forensic Science Services, England, identified blood on the sole, inside heel and on lace end of the left shoe, and noted a strong smell of decomposition associated with the left shoe. DNA analysis identified the cuttings from the shoe as containing information consistent with Leah Freeman's DNA profile. Kathy Wilcox offered the opinion that a bloodstain on the sole of the left shoe could be identified as a high or medium velocity bloodstain.
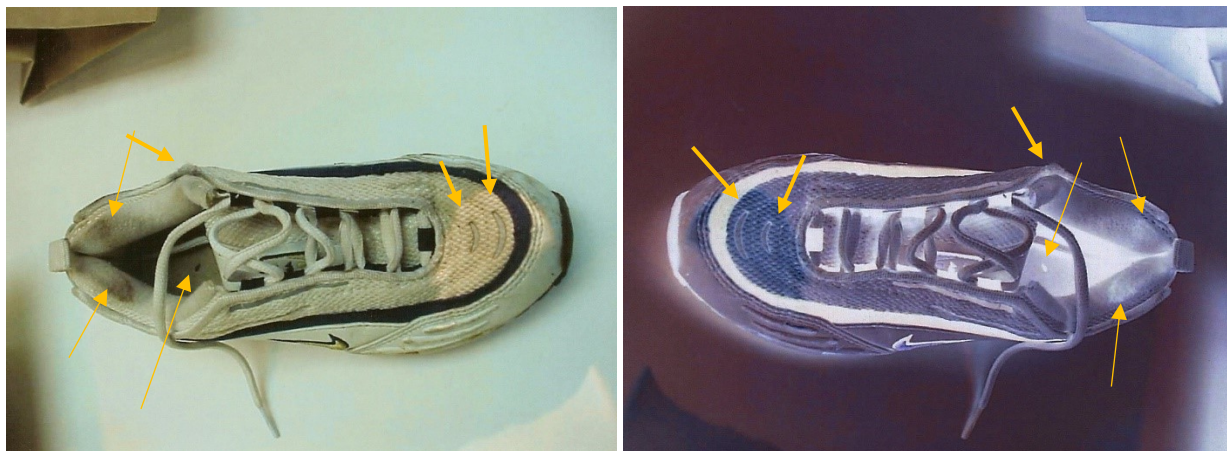
It is my opinion, based on my training, education, experience, and research, that there is insufficient information to identify a mechanism that produced the bloodstains on the sole of the left shoe, and that the images on the upper interior of the left shoe of Leah Freeman are consistent with transfer bloodstains.

I used a computer enhancement technique called "Invert." This is a presumptive and discovery non-destructive method for identifying potential bloodstains. I used that method on a digital image of the left shoe of Leah Freeman to include the sole of the shoe, and the top exterior and top interior of the shoe. I also used information from education, research, training, and experience to identify and evaluate bloodstain patterns and associate mechanisms for formation of bloodstain patterns.

Materials and Methods:

    A. Materials:

        a. I received photographs of the shoes of the victim and a lab report hand drawn sketch of the left shoe. The photos and sketch were from a report by Kathy Wilcox. The photographs are as follows:

2

Figure 1: Left shoe. The left image is a standard image taken from an official report. The right image is an inverted image using Irfanview software, https://www.irfanview.com/. Both images present dark areas (standard image) and lightened areas (inverted image) that are consistent with blood visualization using the invert technique. Mark up by Larry Barksdale.

Figure 2: Left shoe sketch. This is a sketch of the left shoe by Kathy Wilcox indicating #2 was a high velocity bloodstain. The notes indicate there were 4 possible bloodstains. #1, #3, and #4 were identified as small droplets and smear. The notes indicate that #1, #4, #5 were presumptively tested for blood. Number 2 (#2) was identified as a "high" velocity blood droplet. The notes do not show that #2 was ever presumptively tested.

3

Following are images of the left shoe. The standard images are from the lab report of Kathy Wilcox. The right images are inverted images, by me, using Irfanview photo editing software, https://www.irfanview.com/.

Figure 3: Overall sole of left shoe of Leah Freeman.
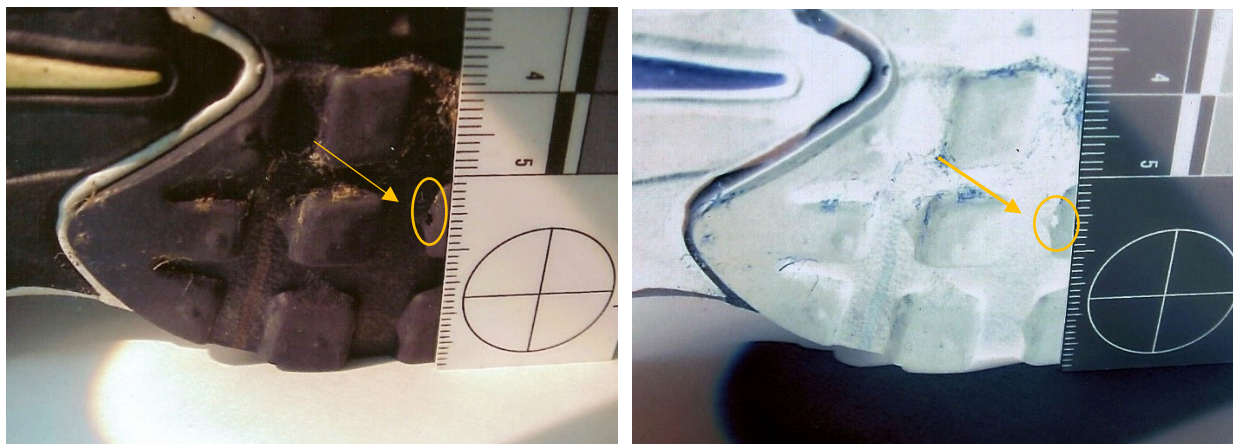

Figure 4: Close-up left shoe of Leah Freeman. Yellow arrows in images point to the bloodstain identified by Kathy Wilcox as high velocity bloodstain. Mark up by Larry Barksdale.
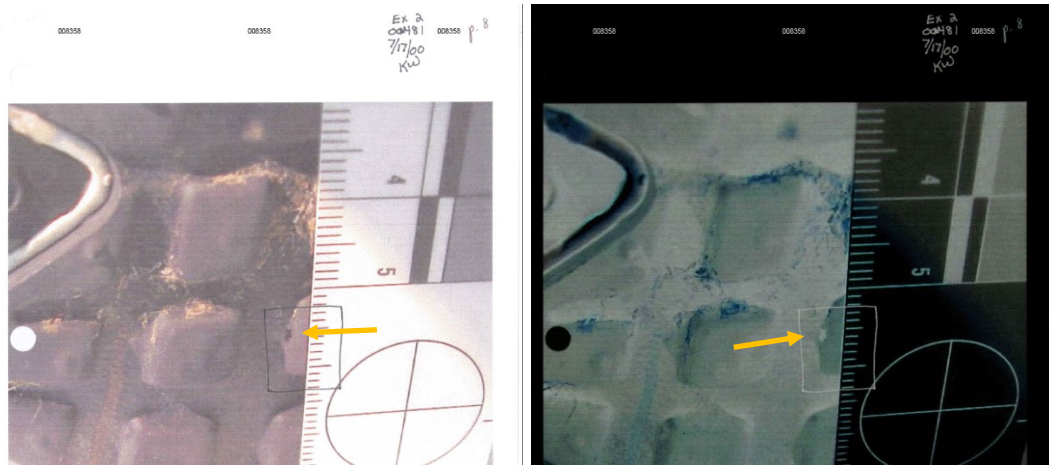
4

Figure 5: Close-up image and mark up of left shoe of Leah Freeman. The square was placed in the image in the original report. It encloses the bloodstain of interest to Kathy Wilcox. Yellow arrows point to the bloodstain identified by Kathy Wilcox.

5

Figure 6: Left shoe of Leah Freeman. Although the notes say right shoe, this is a heel to toe image of the left shoe. The light illuminates the bloodstain of interest to the case. The yellow arrow points to the bloodstain identified by Kathy Wilcox as high velocity. The bloodstain is not a small round geometric pattern. It is an irregular undefined geometrical pattern. There are no indications of elliptical bloodstains, indication of directionality, misting like stains, indications of mass or tissue. There is a paucity of bloodstains.
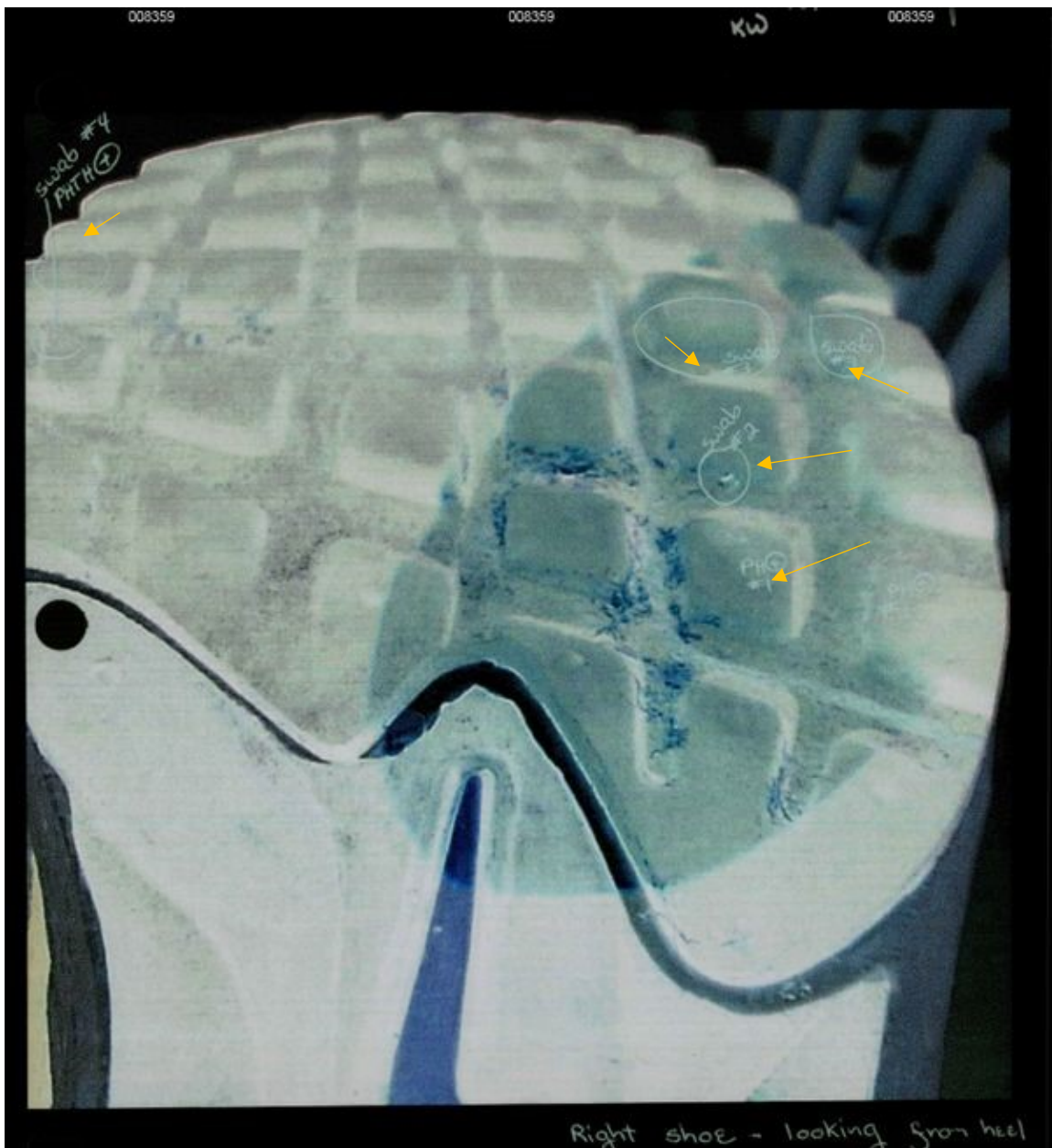
6

Figure 7: Left shoe of Leah Freeman. The yellow arrows point to suspected bloodstains. Mark up by Larry Barksdale.

Projected bloodstains such as those caused by gunshot or similar high force mechanism, blood expirated from the mouth or nose, blood projected from the body due to a wound, or blood cast from an object moving in air are defined by small, circular bloodstains with accompanying elliptical bloodstains. Those produced by gunshots may have a misting section of stains and evidence of tissue, hair, and other trace evidence. Those produced by expiration from the mouth, as an example, have stains with air bubbles. Expirated stains rarely have misting stains and rarely tissue or hair trace evidence. Blood cast offs from an object have

7

elliptical stains and some sequential and linear stain relationship among several stains. These various projected bloodstains have a sense of directionality.

Insects, particularly flies, defecate and regurgitate after feeding on human bodies and leave stains that are small and circular, very irregular, and stains that are elliptical but deformed. Insect stains lack directionality in the overall pattern, and the tails do not point in an organized consistent direction that would help to define an origin. They randomly point in many different directions. Other than blood there is no other trace evidence, such as mass tissue and hair, associated with insect stains. Rough surfaces can disturb the geometric morphology of blood stains. Typically, the edges are rough. Cloth can cause diffusion of a bloodstain. However, the stains retain the general characteristics of a circle or ellipse if a projected type of stain.

The bottom of the shoe lacks many features associated with high velocity and medium velocity bloodstain patterns: clear morphology showing circular to elliptical geometric structure, large number of stains, directionality, mass, tissue, misting. High velocity bloodstain patterns are produced because of a gunshot, or mechanism with extreme force. Expirated bloodstains are considered medium velocity bloodstains and are like those spewed from the body through the mouth or nose.
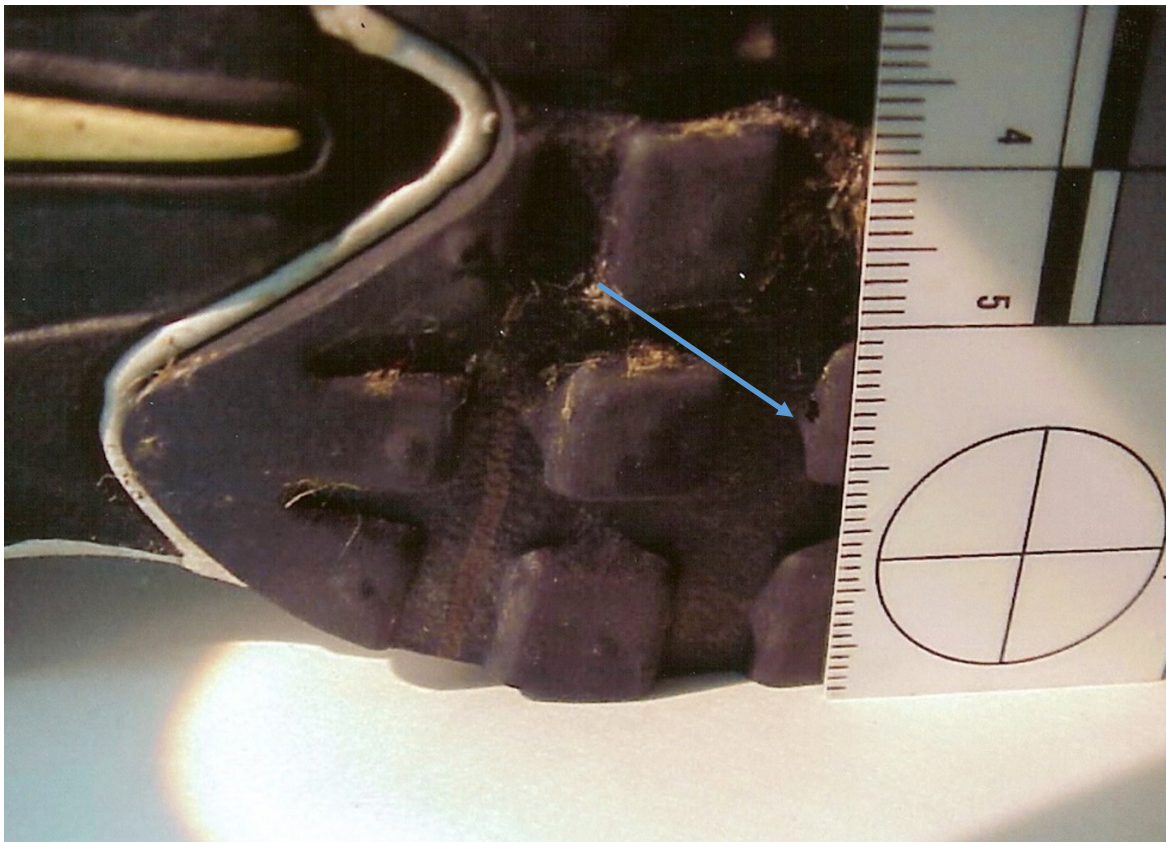

Figure 8: Image of left shoe of Leah Freeman. It shows the questioned stain as an irregular shape without significant accompanying stains.

8

b. Case reports:

I received the law enforcement and forensic lab reports from agencies in Oregon, the independent lab report from Forensic Science Services of England, and the General Judgement (Post-Conviction) by Sr. Judge Patricia Sullivan, Circuit Judge, Oregon.
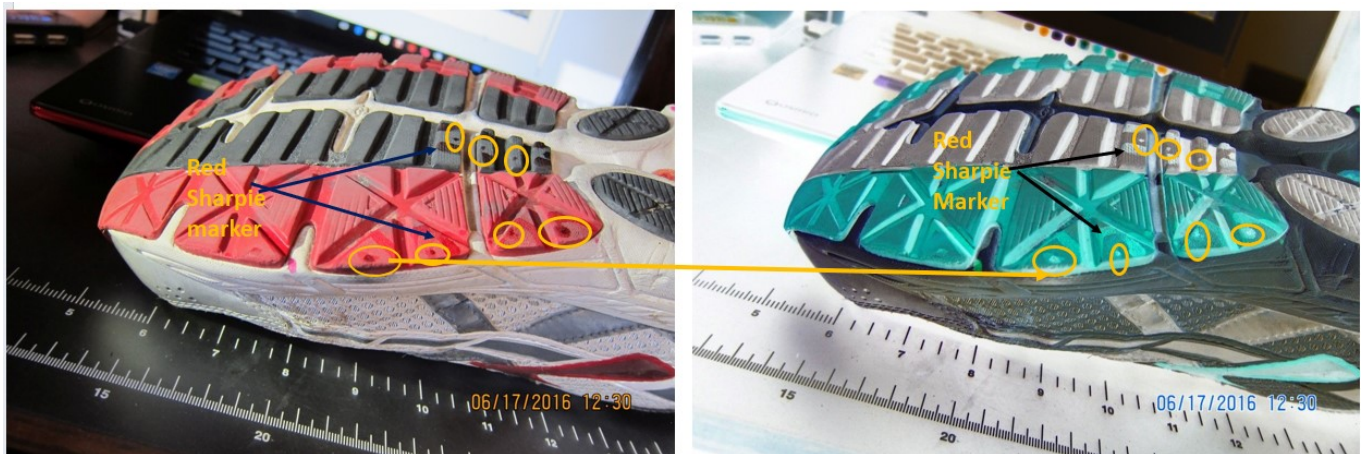
c. Bloodstain Information and Literature Review

I gathered information on bloodstains that I have collected over the years in my roles as police officer, crime scene investigator, forensic scientist, consultant, and professor. Materials consist of photographs, textbooks, journal articles, case files, investigative and teaching materials, and research projects.

d.   Photo Editing Software.

I used Irfanview to view digital images and to enhance digital images. This is free software. I have used it for many years. I have testified in court many times on digital images and used this software for enhancing and viewing digital images. It can be found at https://www.irfanview.com/.

B. Methods
    a. Conduct Field Exercise and Experiment.

The invert technique presents blood as a bluish-white color. This is a presumptive technique. Basically, when a digital image is inverted dark objects appear lighter in the inverted image. Since all materials absorb, transmit and reflect light different, the characteristics of a given material can be presumptively identified by inverting and showing a different contrast from other materials. In the above image the yellow circles identify corresponding known bloodstains. The black lines point to known corresponding red magic marker stains. There are false positive with this technique. However, it has value for discovery and presumptive decision making.

Figure 9: Field exercise using Irfanview. Images and mark up by Larry Barksdale.

9

I conducted a comparative exercise using a red magic marker and known human blood to illustrate the applicability of the invert process using Irfanview photo editing software. Figure 9 is an image of the results of that exercise. The shoe was a personal shoe that I knew to be clean of bloodstains. I used a red magic marker to mark spots on the shoe, and I used my blood to make small bloodstains on the shoe. I have used this technique in actual cases and have testified in court before a jury on the use of the technique. In 2005, I published a paper on the technique [1].

The yellow circles indicate known bloodstains. The dark lines indicate red magic marker stains. The known bloodstains are dark in the standard digital image and a bluish white in the inverted image. The red magic marker is also dark in the standard image and whitish in the inverted image. This demonstrates that the invert technique is a discovery and preliminary technique.

It has value in preliminary decision making if there are possible bloodstains on an item. Confirmation is done in a full-service lab with appropriate lab techniques such as DNA analysis.

b.   Review case file and related case documents.

I reviewed case file reports and related case documents. This included carefully examining digital images of the left shoe of Leah Freeman. It included using the invert function in Irfanview to create and save images of the left shoe.

I compared the digital images of the left shoe with the sketch drawn by Kathy Wilcox. I was not able to measure the bloodstain of interest since Kathy Wilcox's photographs were not taken in an orthogonally correct perspective. The round circle in the scale in a digital image should be round if the photograph was taken so the axis of the camera lens is ninety degrees to the surface of the object (orthogonal). A comparison with the size of shoe lugs indicated that the bloodstain was not large. It had a morphology that was irregular.

c.   Literature Review:

I organized information to define bloodstain patterns and the processes to identify bloodstains patterns. The technique is based strongly on training, education, experience, and research. It starts with a comparative analysis technique in comparing known to unknown patterns, conducting chemical tests to identify blood, biological tests to identify blood, biological and chemical techniques to locate and document blood, biological techniques using DNA methods to identify blood, physical tests to document blood, knowledge of laws of physics to evaluate mechanisms producing bloodstains, behaviors of blood as a material and a liquid, mathematical skills to calculate bloodstain origins, statistical skills to determine credibility of bloodstain evaluations, and logical skill to associate bloodstains with human and physical behavior. I also included reviewing literature on bias, uncertainty, and error to refresh my memory and remind myself to conduct myself in an objective scientific manner.

10

Bloodstain pattern analysis is based largely on comparison of known patterns generated by known mechanisms. Researchers and practitioners, as an example, fired firearms into materials with blood and documented the resulting bloodstain patterns.   Researchers and practitioners documented actual bloodstain patterns at real scenes when the mechanism was known. Case information and anecdotal information combined with research promulgated a body of literature formed around bloodstain pattern analysis. A professional organization was established in 1983 and was known as the International Association of Bloodstain Pattern Analysts [2,3]. Herbert MacDonell, in 1993, published Bloodstain Patterns [4].

Over the years there has been extensive ongoing research, revision of terminology, training sessions, college courses and online courses related to bloodstain pattern analysis and bloodstains as evidence [5,6,]. Numerous textbooks have been published that are accepted by the scientific community [7,8,9]. Other resources have published overview and specific information on bloodstain pattern analysis [10,11]. I have drawn on the published information along with training, education, and research to assemble the following overview of bloodstain patterns as they apply to this case. The following images are examples of the more well-known bloodstain patterns that pertain to the case of this report.

Figure 10: Impact bloodstains. Image from personal files of Larry Barksdale

Impact stains are formed when an object impacts existing blood, or a large volume of blood impacts a substrate. This is most noticeable when there is a volume of blood. Common impact stains are created when a body falls into a pool of blood, or the pool is stomped by a foot. When creating classroom exemplars, it is common to slam a basketball into a pool of blood or drop a large can of synthetic blood onto a floor. Characteristics are the central volume of blood and radiating, long, spiny bloodstains accompanied with round stains, and elliptical bloodstains reaching out from the volume stain. Unlike insect stains, the radiating and elliptical stains show organization and directionality of blood movement. These are considered medium

11

force bloodstains. The term high velocity was used in recent years past but has been replaced in the literature with the term force or a more descriptive term than velocity.

Figure 11: Blood on clothing showing transfer stains, dripping stains from a moving object, and mixture of stains. These are low force stains. This image was from what was believed to be self-inflicted kitchen knife injuries when the victim allowed the arm to hang down and swing free, and blood was cast off and dripped from the knife and injuries to the body. The arm and hand holding the knife was gently swinging back and forth. The victim was sitting in a chair at a table, leaned over, allowing the arm to hang below the chair seat. The surface was the leg of pajama pants. The cast-off stains are identified by smaller stains that seem to group together and form in a line or arc. There are also transfer stains when a bloody object or hand, as examples, touched the pant leg. The yellow box outlines transfer stains. The red box outlines cast-off and drip/drop stains with transfer stains. Images from personal files of Larry Barksdale. Mark up by Larry Barksdale.

12

Figure 12: The image depicts mixed bloodstains patterns fram a self-inflicted gunshot. Image from personal files of Larry Barksdale. Mark up by Larry Barksdale.

In Figure 12 there is a large passive flow of blood creating a pool. There are drip/drop stains as an object (head, hand, shotgun, body) slowly moved around dripping blood. There is an area near the kickstand and under the wheel that is typical of expired blood spewed from injuries that are mixed with small bloodstains from the force of the firearm. In the left of the image is a paint like misting pattern that is typical of gunshot, high velocity, bloodstains. The pttern is a mixure of patterns.

In the preceeding image, the yellow circle indicates the misting asociated with high force, such as firearms. The green line indicates drip/drop from falling blood without extra force, and the dark blue link indicate small round stains associated with expired stains and gunshot porduced bloodstains. Notice the small round stains on the upper bike tire. Important information is that when bloodstains are produced due to high force and medium force, there are many small round and elliptial bloodstains that show a certain amount of organization, close association, and directionality. Additionaly there are a mixture of stains that conform to definable geometrical shapes such as circular, elliptical, spiny, linear. It takes more than one stain to identify a pattern.

13

Figure 13: The victim had a large incision in the upper arms from a knife fight event. The bleeding victim, it is theorized, was slinging blood from his body as he walked along the wall. Tear drop stains are known as cast off bloodstains. There are linked linear patterns. The dark colored arrow indicates the direction of travel of the bloodstains. Tails point in the direction of travel. One cannot tell if the blood was being cast off from an arm, a swinging hand, bloody hair, or some other object. Image is from personal files of Larry Barksdale. Mark up by Larry Barksdale.

Individual bloodstains can be measured to determine the origin of the bloodstains. In the above example a line bisecting an elliptical stain can be measured with a protractor to determine a direction of travel. Without measuring it is possible to determine that the bloodstain was travelling top to bottom, right to left, and inward towards the wall.

14

If a scale had been inserted more accurate measurements could have been done using photogrammetry methods. The methods are based on trigonometry. The width of a bloodstain divided by the length represents the sine of the angle of impact. The invert function, arcsine, represents the angle, in degrees, of impact of the bloodstain. Bloodstains travel in oscillating spheres and when impacting a surface morph into elliptical stains. If they fall straight down, they are round. If they impact at a narrow angle, they are very elongated ellipses.

Figure 14: Mixed bloodstains

In Figure 14, There are cast off (dark circle) bloodstains. These stains are elliptical, and the tails point in the direction of travel of the bloodstain at the time of impact. The bloodstains have a certain linearity and directionality to them. The projected bloodstains are identified by initial points of impact and subsequent long vertical blood lines. These stains are often called arterial spurt bloodstains (yellow circle). The mechanism is that an artery, as an example, is injured and squirts blood. The squirt impacts the surface and runs down the surface. There are transfer stains in which a bloody object touched the surface (green circle). If an object swiped across a surface as compared to touching or contacting, the stain is called a swipe bloodstain. In the above, one could say there were transfer contact and swipe stains. There are also voids in these transfer stains as if something wiped through the existing blood (dark box). Wipe through stains are known as wipe bloodstains. The surface is a rough surface and shows texture to some of the bloodstains. Images are from personal files of Larry Barksdale. Mark up is by Larry Barksdale.

15

Investigators at the scene might test the suspected blood with preliminary tests such as Hemastix or Phenolphthalein. They most likely would take swabs for future DNA analysis. This does not tell them what took place. More information is needed from a victim, witness, or perpetrator. In the above Figures 13 and 14, a victim was located with sharp force injuries and one that severed a major blood vessel in the arm. The victim told a story of a fight, getting cut, and then trying to get away from his assailant. The bloodstains information, at this point, tends to corroborate the victim's statement.

Figure 15: The green circle presents bloodstains that are like expiated blood. Expirated stains are considered medium force bloodstains. There are small round bloodstains, some elliptical bloodstains, and some mass. Bloodstains might contain air bubbles. They do not have very small stains, mist like stains, or large mass associated with high force bloodstain like those produced by a firearm. The dark squares present transfer stains. They are from a bloody object touching the surface of an object. In this case a person with a throat injury was spewing blood onto the shirt of the attacked and with bloody hands was grabbing the shirt. Image from personal files of Larry Barksdale. Mark up by Larry Barksdale.

Bloodstains rarely stand alone. Other information is needed in identifying a bloodstain pattern.

16

If a firearm was involved, as an example, then small stains, directionality, elliptical stains, mist like stains, and mass are consistent with bloodstains produced by a firearm. If there are small round stains, absence of mist stains, no known use of a firearm, a victim with injuries to the mouth or chest, bloodstains on the front of a shirt and around the mouth, bloodstains with air bubbles, then the bloodstains are consistent with expirated blood although similar to firearm produced bloodstains.

In Figure 15 the victim had sharp force injuries, bloodstains around the mouth and nose, bloody hands, and dribble stains on the front of her shirt. She had sharp force injuries. There was a knife at the scene with blood on it. The shirt in the image was the shirt of the assailant. The bloodstains support a theory that the victim was spewing blood from her injuries and was grabbing the assailant's shirt in a struggle with him. Information other than the bloodstain contributed to reaching a decisions that the pattern was most likely an expiated bloodstain pattern.
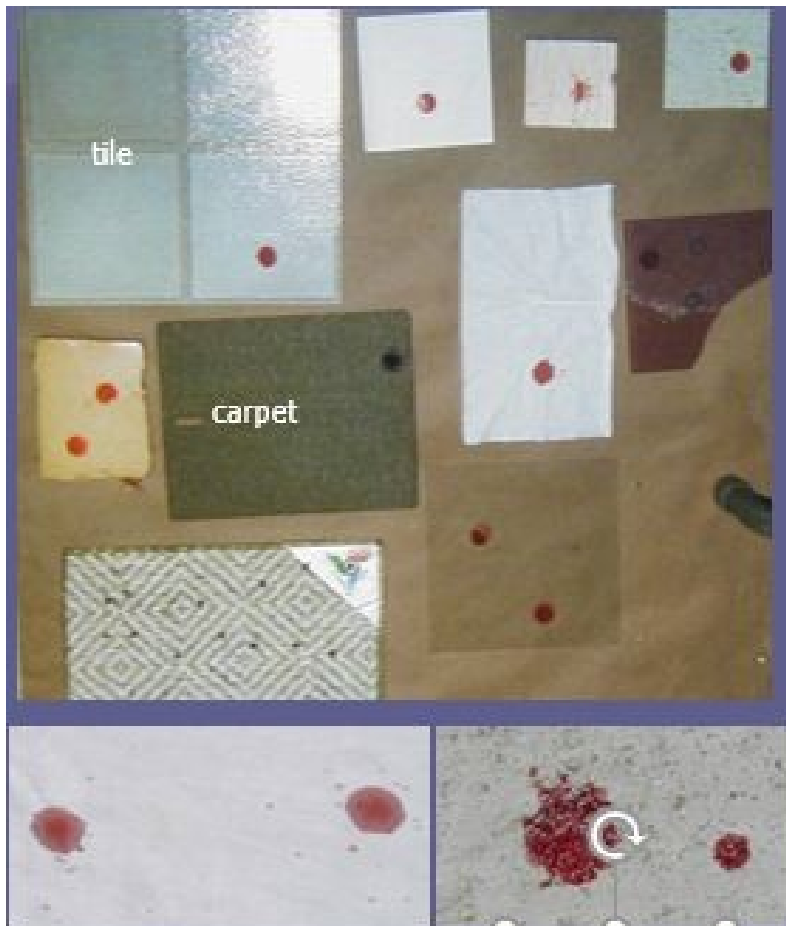

Figure 16: This is a composite of blood, free falling, toward a target surface (substrate). Free falling blood is known as low velocity. Gravity is at work. The stains are mostly round. This indicates a 90-degree angle of impact. Surface morphology can affect the resulting bloodstain pattern. Rough surfaces can cause a break of the blood drop. Fabric can cause the bloodstain

17

to "grow" due to wicking dynamics. However, the stains retain resemblance to their original morphology. Image is from personal files of Larry Barksdale.

Figure 17: A victim had sharp force injuries from being struck with a lamp. She was trying to crawl from her assailant. He was kicking, stomping, and punching her. There are projected bloodstains, arterial spurt, as blood was being squirted from injuries (door). There are projected, expired stains, as she spewed blood from her mouth and nose. There are cast off stains from swinging hair and body parts, and from the swinging hands and feet of the assailant. There are transfer stains as she brushes against the door and wall.   There are volume stains from her extensive bleeding, and there are swipe stains as she swipes against surfaces. There are wipe stains as she and the assailant move objects through existing bloodstains. Images are from personal files of Larry Barksdale. Mark up is by Larry Barksdale.

The interpretation of the bloodstains in the above images can corroborate the story of the victim, witnesses, and suspects. They may corroborate, or undermine, the story of an assailant.

DNA analysis can identify the origin of the blood. Trace evidence such as hair, fibers, tissue, glass, and bloodstains can add further information to associate people, objects, and things. Impressions such as fingerprints and shoe outsoles can add further information to associate things and objects.

Crime scene reconstructionist use the term consilience to mean a concurrence of the information. All the information points to a reasonable theory based on science and logic.

The following images are a collection of the most common bloodstain patterns. They are presented with standard visualization and with application of the invert technique. Bloodstains analysts may use chemicals such as luminol, or Amido Black for discovery and enhancement of bloodstains.
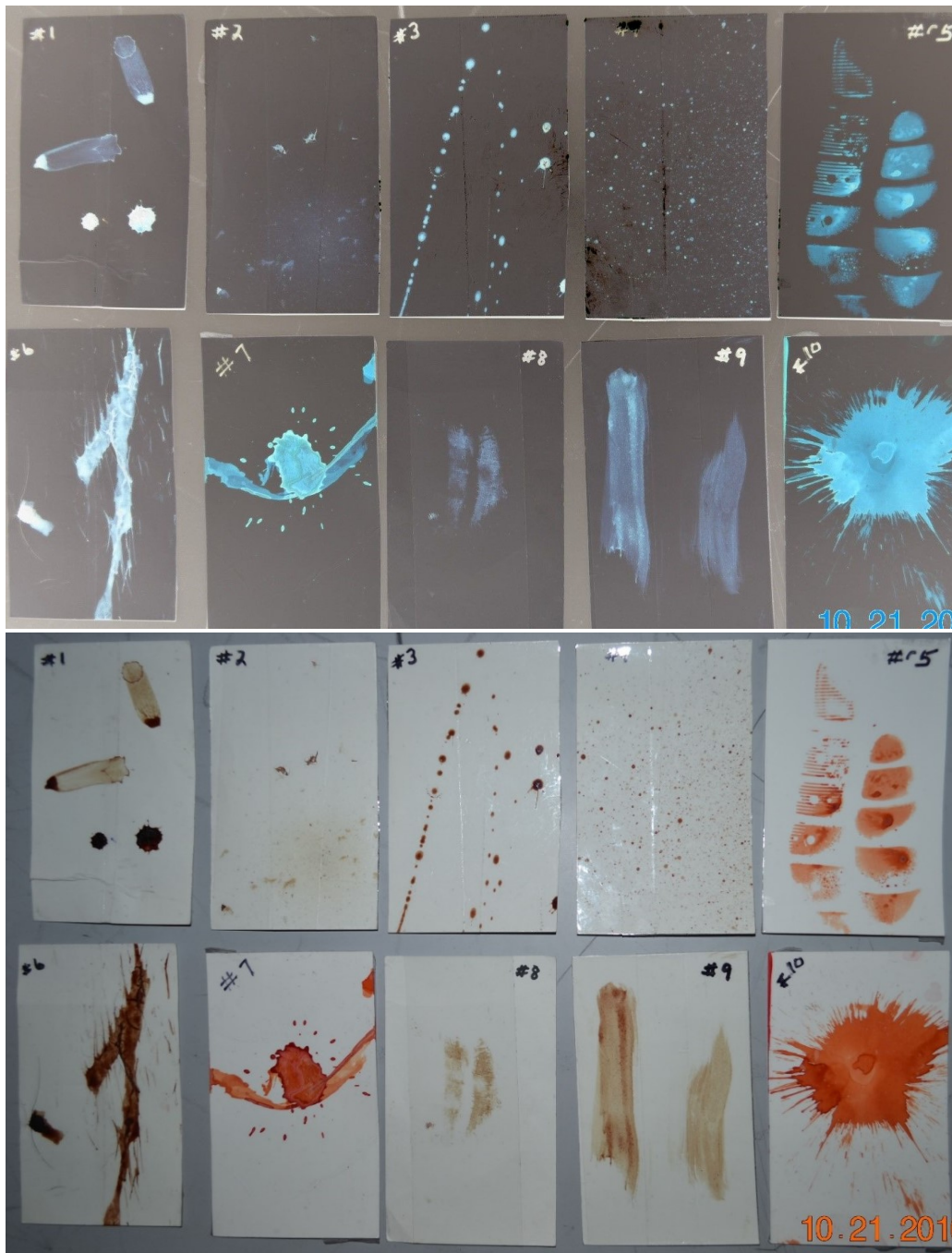
18

Figure 18: 1. **Wipe**, object moved through existing blood, drip/drop; 2. **Gunshot produced bloodstain**; not misting; 3. **Cast-off, small, linear,** directionality; 4. **Expirated**, small, no ; 5. **Impression**; 6. **Swipe**, bloody hair or similar object swipes along a substrate; 7. **Drip/Drop**, blood dripping into blood and then free flowing; 8. **Impression**, lips; 9, **Swipe**, bloody finger swiping across substrate; 10. **Impact**, object impacting pool of blood, or large volume impacting surface, notice spines. Images are from personal files of Larry Barksdale. Mark up is by Larry Barksdale.
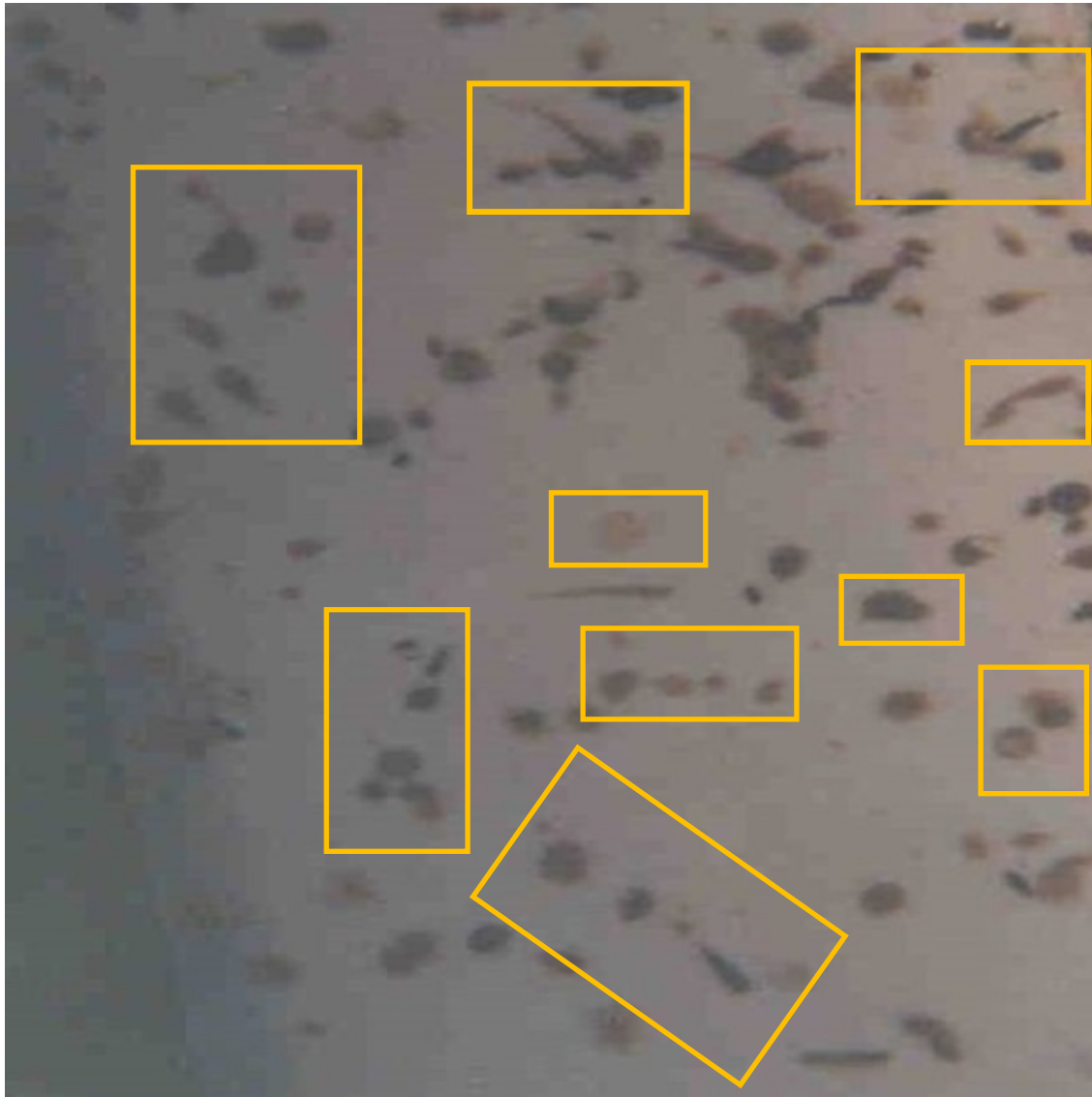
19

Figure 19: This is an image of insect stains. It is from a scene in which the deceased person had entered an advanced stage of decomposition. The stains are without spatial symmetry and directionality orientation. They have numerous shapes such as round of various sizes and various sharpness of edges. They have mixed colors from light tan to dark color. There are stains with tails that look like sperm cells and others that have curved tails. There are very irregular shaped geometrical stains that are more square than round. Image is from personal files of Larry Barksdale. Mark up is by Larry Barksdale.

Care must be taken in analyzing bloodstains to reduce uncertainty in analyses. Rarely does a single bloodstain stand alone for the development of a credible theory.

20

Results

In my opinion, the mechanism cannot be conclusively identified that caused the allegedly "high" or "medium" velocity bloodstain on the sole of the left shoe of Leah Freeman. The bloodstains on the upper interior heel area of the left shoe, in my opinion, are transfer bloodstains due to contact of a bloodstained object, such as a finger, with the shoe. There is another stain that appears to be blood on the rear inner bed of the shoe. A mechanism cannot be identified for it.

a.   Left Shoe Bloodstains:

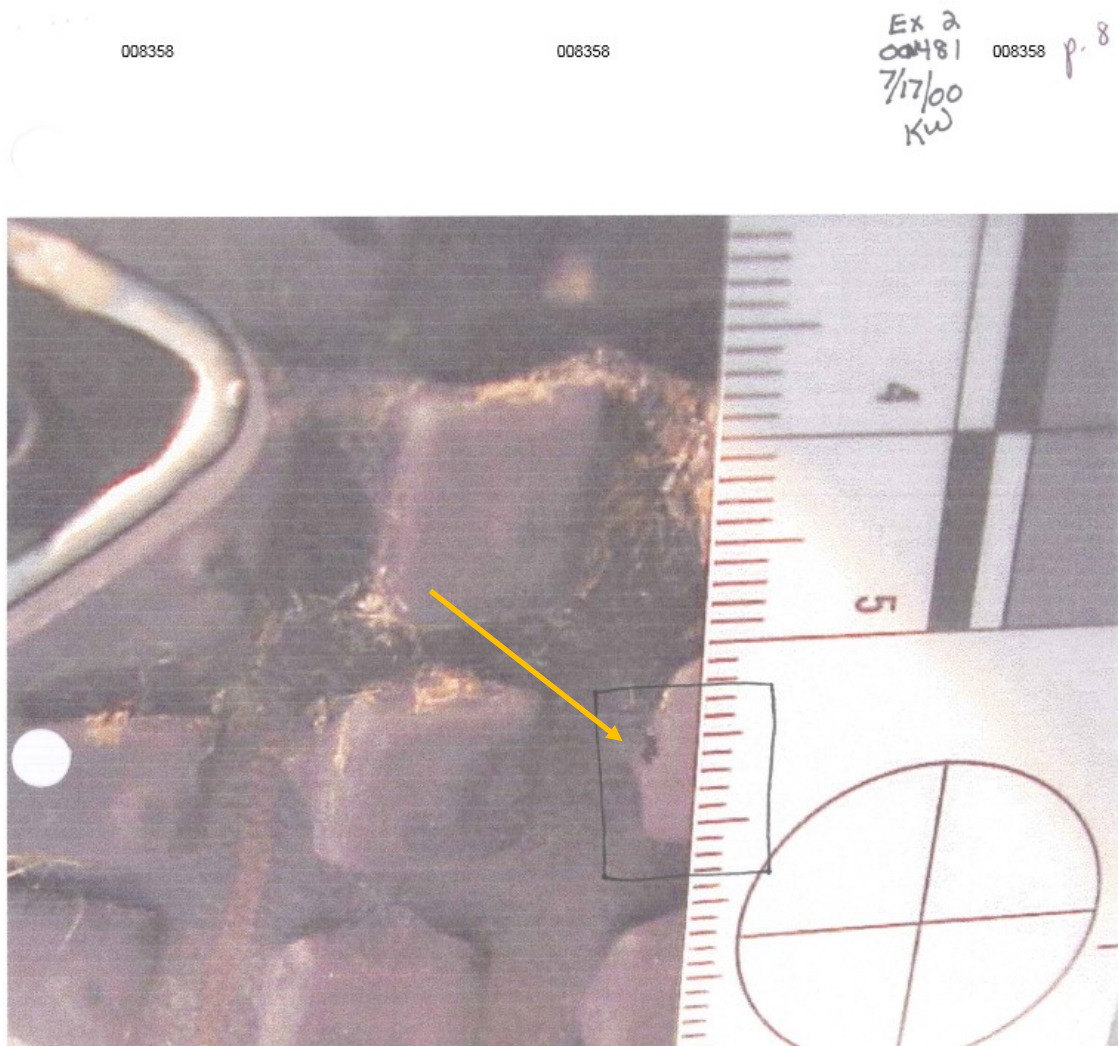*Figure 20: Sketch by Kathy Wilcox of sole of left shoe*

Figure 21: Lab image of sole of left shoe

The stain on the left shoe, referred to as a "high" velocity bloodstain in the sketch and reports, is not a round or elliptical stain one would expect with a high velocity bloodstain. Similarly, a stain produced from an expiration, cast-off, or arterial spurt projection would most likely be round or elliptical. Figure 20 and Figure 4 and Figure 5 show it to be a small irregular shaped stain. It has a geometrical pattern more like stains produced by insects.

The sketch indicates the presence of other stains that tested positive for blood. These are smaller stains. There are no good close-up images of these stains. Their geometrical patterns are difficult to describe from images. The stains do not seem to provide a sense of directionality. There are no misting like stains or blood and tissue mass. There are no stains with air bubbles. There are not a lot of stains like one would expect with gunshot or expiration.

22

There was no supporting information from the autopsy or witnesses of injuries that would corroborate bloodstains from expiration. There was no case information of an instrument or object that could have caused injury with bleeding found at the scene or suspected of being associated with the death of Leah Freeman. Expiration is considered a medium velocity bloodstain.

The body was in an advanced state of decomposition. Blood around the mouth or the nose was not presented to examiners. There was no information of sharp force injuries or blunt force injuries that would associate an arterial spurt as causing the stain. There were no broken bones or skeletal trauma that would indicate strangulation or blunt force trauma. Arterial spurt is considered medium velocity bloodstain. There is no information about a firearm or other instrument that supports high force that would produce a high velocity stain. There was no information or evidence of blunt force trauma that could have caused injury and contribution to cast off bloodstains. Cast off bloodstains are considered medium velocity bloodstains.

In my opinion there is insufficient information to determine the mechanism that produced the bloodstains on the sole of the shoe of Leah Freeman, and, particularly, to identify the allegedly "high" or "medium" velocity stain as one produced by expiration.

b.   Interior bloodstain on left shoe of Leah Freeman.

The report by Forensic Science Services, England, noted blood on the left shoe on the lace, rear area, and interior heel area. The report noted a strong odor of decomposition.

23

Figure 22: Left shoe of Leah Freeman. Yellow lines point to dark areas. These are potential locations of blood. What is not presented are numerous other small spots or dark areas that would be consistent with high velocity or medium velocity projected bloodstains like gunshot produced or expired bloodstains. The small bloodstain on the inner foot bed is not round. The darkened areas on the inner rear upper potion have a shape like that of a finger smudge, and they are in the area one would touch when removing and carrying a shoe. Mark up by Larry Barksdale.
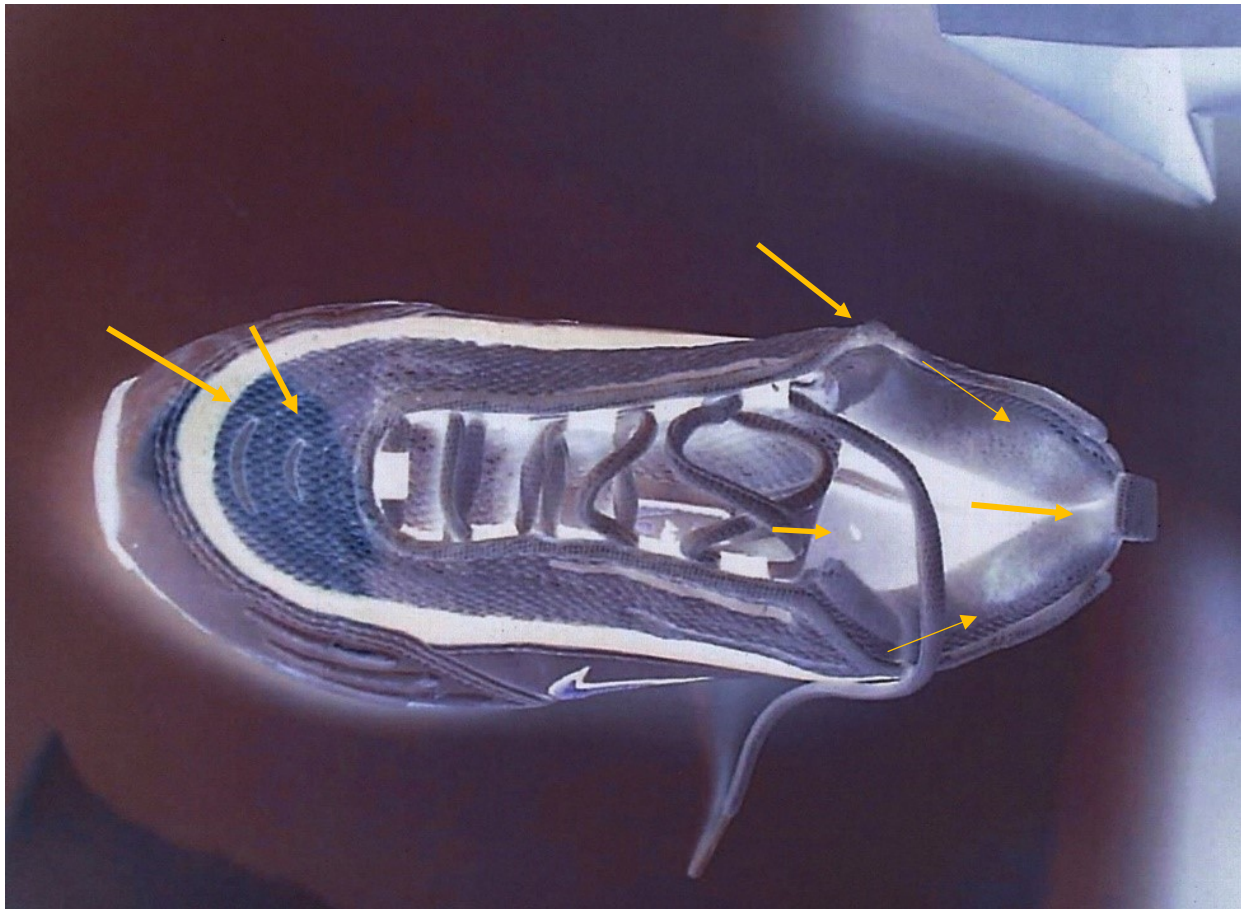
24

Figure 23:   Left shoe of Leah Freeman, inverted.   The inverted image indicates possible bloodstains. The upper inner stains look more like fingerprint smudges. There is not an indication of numerous small stains, misting, or other features that would support expiration or gunshot produced bloodstains. Mark up by Larry Barksdale.

The images of the left shoe clearly show a small spot on the interior bed part of the rear bed of the shoe. It is not round, it has a slight elliptical characteristic. It was not confirmatory lab tested for blood. There is insufficient information to make an identification of the mechanism that produced this bloodstain, but insect, drip, or contact are within the range of possibilities. There is a lack of information to support a conclusion of high or medium velocity bloodstain.

The stains on the upper rear interior have characteristics that resemble fingerprint smudges. The stains are consistent with transfer contact stains. I attempted pattern removal techniques to try to bring out ridge detail. I was not successful with this technique. The stains were not confirmatory lab tested for blood.

25

Conclusion:

It is my opinion, based on my training, education, experience, research, and review of the case file that the bloodstains on the sole of the left shoe of Leah Freeman cannot be identified as a high or medium velocity bloodstain. It is not consistent with expirated bloodstains. It does not have a round or elliptical morphology that would be expected with an expirated bloodstain. It is not accompanied by many other round or elliptical bloodstains in a group with organization and directionality that would be expected of expirated produced bloodstains. It does not have a misting characteristic that is expected with high velocity, such as gunshot produced, bloodstains. It does not have a mass feature that would be expected with expirated and high velocity bloodstains. In addition to geometric characteristics, the bloodstain identified as high or medium velocity was not tested for blood.

It is my opinion that the area in the inner shoe that resembles fingerprint smudges are consistent with transfer bloodstains.

If further information becomes available, I will consider it in any future editing of this report.
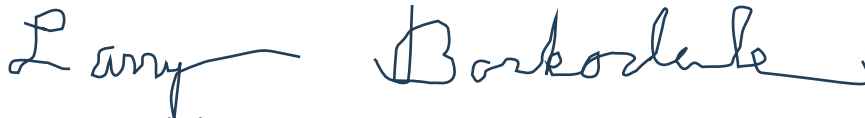
References:
1. Barksdale, L. The Invert Function. EPIC Newsletter. August 2005. http://www.epic-photo.org. The web site and organization are no longer active as of 20 December 2023.
2. MacDonell HL. Bloodstain Patterns.   Corning (NY): Laboratory of Forensic Science, 1993. p. xi.
3. International Association of Bloodstain Pattern Analysts. https://iabpa.org/.
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26

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13. Barksdale, L. Wherefrom came those spots. Crime Scene. Northwest Association of
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15. Fujikawa, A, Barksdale L, Carter DO. Calliphora vicina (Diptera: Calliphoridae) and their
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27

Curriculum Vitae
Larry E. Barksdale, A.A, B.S., M.A.

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Personal Web Site: www.lebinvestigations.com

PROFESSIONAL RECORD

Education

Master of Arts, Political Science, University of Nebraska–Lincoln, 1989
Bachelor of Science, Criminal Justice, University of Nebraska–Omaha, 1972
Associate of Arts (Pre-Engineering), Dodge City Community College, Dodge City, Kansas, 1966

Employment

Academic

Assistant Professor of Practice Forensic Science, Forensic Science Degree Program University of Nebraska–Lincoln, 2012-Present.

Adjunct Associate Professor of Practice - Forensic Science, University of Nebraska–Lincoln, Nebraska, 2008-2012.

Adjunct Instructor - Forensic Science, Nebraska Wesleyan University, Lincoln, NE 2001-2009.

Guest Lecturer, Semiotics and the Investigative Genre, Doane College, Lincoln Campus, NE, 2001-2007.

Guest Lecturer, University of Nebraska–Lincoln, College of St. Mary's, Southeast Community College 1995 – 2007.

Consultant, Subject Matter Expert, Forensic-Training-Network, 2009-2012.

Former Certified Crime Scene Analyst, International Association for Identification.

Owner, LEB Investigations, www.lebinvestigations.com. Current

Members of LEADDS, consultant.

Law Enforcement

Crime Scene Tech Unit Supervisor, Nebraska Police Department, Lincoln, 1996-2012.

Case Manager Criminal Investigations Team, Nebraska Police Department, Lincoln, 1995-2012
        Case Coordinator for
                -Death Investigations

Appendix 1, Page 28 of 50

-Missing Persons
-Hate Crimes
-Threat Management
-Arson
-Stalking
-Crime Scene Reconstruction

Detective Sergeant, General Assignment, Criminal Investigations Team, Nebraska Police Department, Lincoln, 1977-1994.

Planning and Research Officer, Office of the Chief of Police, Planning and Research Unit, Lincoln Nebraska Police Department, Lincoln, 1975-1977.

Uniform Patrol Officer, Lincoln Nebraska Police Department, Lincoln, 1971-1975.

Military Service

United States Army, Explosive Ordinance Disposal Specialist, E-5, Specialist 5th Class, MOS: 55N40, 1966-1968.
United States Army, Active Reserve, 1968-1970.
United States Army, Inactive Reserve, 1970-1972.

Consultant

LEB Investigative Solutions. 2000 – present.

PROFESSIONAL CERTIFICATIONS
- Basic Certification, Police Officer, Nebraska Law Enforcement Training Center (1972)
- Crime Scene Analyst, International Association for Identification (2004, renewed 2009)
- Crime Scene Technician, International Association for Identification (1999)
- Fluorescein Technique, RC Forensics, Inc.
- Nebraska Law Enforcement Supervisor, Nebraska Law Enforcement Training Center (1984)
- Professional Law Enforcement Instructor, Nebraska Law Enforcement Training Center
- United States Army, Explosive Ordinance Disposal (EOD), 55N40 (1966-1968)

PROFESSIONAL MEMBERSHIPS
- American College of Forensic Examiners
- American Society of Trace Evidence Examiners
- Association of Threat Assessment Professionals
- International Association for Bloodstain Pattern Analysts
- International Association for Identification, Lifetime Member
- International Association for Identification, Nebraska Division, Lifetime Member
- International Association of Auto Theft Investigators, Lifetime Member

PUBLICATIONS

Barksdale, L. (1978) Team Policing. Nebraska Sheriff's and Police Officer's Journal.

Barksdale, L. and Peschong, J. (1980) Recreation Vehicle Thefts. International Association of Auto Theft Investigators Annual Proceedings. Arlington Heights, IL: International Association of Auto Theft Investigators.

Barksdale, L. (1981) Homicide Investigation. Nebraska Sheriff's and Police Officer's Journal.

Barksdale, L. (1983) Recreation Vehicle Thefts and Title Laundering. International Association of Auto Theft Investigators Annual Proceedings. Little Rock, AR: International Association of Auto Theft Investigators.

Barksdale, L. and Sundermeier, J. (1999) Bloodstain Patterns or Fly Artifacts: The "X" Factor. News and Clues, Omaha, NE, Nebraska IAI.

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Fujikawa A, **Barksdale L**, Higley LG, Carter DO (2011) Changes in themorphology and presumptive chemistry of impact and pooled bloodstain pattern by *Lucilia sericata* (Meigen) (Diptera: Calliphoridae). J Forensic Sci. 56: 1315-8.

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Striman, Becca, A. Fujikawa, **L. Barksdale**, and D.O. Carter (2011) Alteration of Expired Bloodstain Patterns by *Calliphora vicina* and *Lucilia sericata* (Diptera: Calliphoridae) Through Ingestion and Deposition of Artifacts. J. Forensic Science 56(S1): 123-127.

Matisoff, Martin and **L. Barksdale** (2011) Bloodstains as Evidence: A Field Manual. Matisoff Publishing.

Matisoff, M. and **L. Barksdale** (2012) Mathematical and Statistical Analysis of Bloodstain Pattern Evidence, Part 1. The Forensic Examiner 21(1): 26-33.

Barksdale, L. (2012) HemaScein^{TM}. Discovery and Testing for Human Blood. Abacus Diagnostics. Online PowerPoint Presentation in PDF. Recovered 15 March 2012. http://www.abacusdiagnostics.com/Hemascein_1_Sergeant_Larry_Barksdale.pdf.

Lowis, T, K. Leslie, **L. Barksdale**, D.O. Carter (2012) Determining the Sensitivity and Reliability of Hemascein. J. Forensic Identification 62 (3): 204-214.

Matisoff, M. and **L. Barksdale** (2012) Mathematical and Statistical Analysis of Bloodstain Pattern Evidence, Part II. The Forensic Examiner 21(2): 22-32.

Barksdale, L. (2012) "Only the Guilty Confess to Crimes." Larry Barksdale responds. Keene, D.L. and Handrich, R. Only the Guilty Would Confess to Crimes. The Jury Expert 24(1): 14-18.

Barksdale, L. (2013), Editor and Contributing Author. Certified Criminal Investigator, CCI. 1st ed. American College of Forensic Examiners. Springfield, MO: ksa media.

Humrich, J. E. and **Barksdale L**. "Hair Analysis in Motor Vehicles" (2016). UCARE Research Products, Paper 114. http://digitalcommons.unl.edu/ucareresearch/114.

Maile, A.E., Inoue, C.G., **Barksdale, L.E**., Carter, D.O. (2017). Toward a universal equation to estimate postmortem interval. J. Forensic Science International 272: 150-153.

Douglas A, **Barksdale** L, Adamowicz M. (2019) Analysis of error within forensic measurements and photogrammetry programs. Poster Presentation, Nebraska Chapter of The International Association for Identification Annual Educational Training Conference. Mahoney State Park, Nebraska. April 2-3.

Barksdale, Larry. (2020) "FORS 411: Forensic Comparative Analysis" . UNL Faculty Portfolios, 153. digitalcommons.unl.edu/prtunl/153.

Death Scene Insect Succession in Nebraska: A Guidebook. Erin Bauer, **Larry Barksdale**, Emma Sidel, and Justine Laviolette. Lincoln, NE. 2022. doi:10.32873/unl.dc.oth.012. <retrieved 29 August 2022 https://digitalcommons.unl.edu/entomologyfacpub/983/.)

Erin Bauer, M.S., MLIS, Charles Murrieta, Ph.D., **Larry Barksdale**, M.A. (2023). Teaching forensic entomology with common grocery items: decomposition and insect succession studies. J Forensic Sci Edu, 5(1).

PRESENTATIONS

I was certified as a Professional Instructor for Nebraska Law Enforcement Training Center providing In-Service Instruction in: Homicide Investigation, Burglary Investigations, Missing Persons Investigations, Crime Scene Techniques, Interviewing, Taking Statements, Investigative Analysis, Critical Thinking, Auto Theft Investigations, Crime Scene Reconstruction, Bloodstain Pattern Analysis, and Shooting Incident Reconstruction.

"Recreation Vehicle Thefts and Title Laundering." International Association of Auto Theft Investigators, 1983.

"Motorcycle Theft Investigations." Nebraska Law Enforcement Training Center, 1988.

"Forensic Issues." Nurse Training Course, Lincoln General Hospital, 1990.

"Death Investigations." Lincoln Police Department. Basic Recruit Academy and New Investigators School. 1995–Present.

"Crime Scene Techniques." Lincoln Police Department. Basic Recruit Academy. 1995–Present.

"Forensic Issues for EMT's." Hebron Fire Department, 1999.

"Psychology of Personality and Law Enforcement Applications." Doane College, Guest Lecturer, 1999–Present.

"Bloodstain Pattern Analysis." Nebraska Wesleyan University, Forensic Science Program, 2000–2009. (4 hour presentation as part of the requirements for a Certificate in Forensic Science).

"Bloodstain Pattern Analysis." Lincoln Police Department, Inter-agency Workshop, 2000.

"Shooting Incident Reconstruction." Lincoln Police Department, Inter-Agency Workshop, 2000.

"Documents." Nebraska Wesleyan University, Forensic Science Program, 2001–2006. (3 hour, graduate level course).

"Advanced Crime Scene Investigation." Nebraska Wesleyan University, Forensic Science Program, 2001–2009. (4 hour, graduate course, core requirement for Master's Degree in Forensic Science).

"Critical Thinking for Law Enforcement." New Investigators Training and Lincoln Police Recruit Training. 2002–Present.

"Interviewing." Nebraska Wesleyan University, Forensic Science Program, 2002–2006. (1 credit hour course, undergraduate or graduate).

"Forensic Photography." Nebraska Wesleyan University, Forensic Science Program, 2002–2009. (1 credit hour course, undergraduate or graduate).

"Bloodstain Pattern Analysis and Fly Artifacts." Nebraska Chapter International Association for Identification Annual Conference, Mahoney State Park, 2003.

"Bloodstain Pattern Analysis." Federal Bureau of Investigation (FBI), Evidence Response Team, February 2004.

"Forensic Linguistics." Nebraska IAI Conference, Mahoney State Park, April 2004.

"Basic Bloodstain Pattern Analysis." Nebraska Wesleyan University, Forensic Science Program, 2005–Present. (1 credit hour course, undergraduate or graduate).

"Advanced Bloodstain Pattern Analysis." Nebraska Wesleyan University, Forensic Science Program, 2005–2009. (1 credit hour course, undergraduate or graduate).

"Crime Scene Reconstruction." Nebraska Chapter International Association for Identification Annual Conference, 2005.

"Investigative Paradigms for the CSI." Rocky Mountain IAI Training Conference. September 2005.

"Investigative Paradigms for the CSI." Regional Training Conference. Chadron State College, Chadron, NE, October 2005.

"Forensic Statement Analysis." International Association for Identification, Nebraska Chapter, Mahoney State Park, April 19, 2006.

"Blood Enhancement Techniques." Lincoln, Nebraska. Workshop in Partnership with RC Forensic, Inc., April 2008.

"Night Time and Low Light Photography." International Association for Identification, Nebraska Chapter, Mahoney State Park, April 8, 2008.

"Mathematics for the Crime Scene Investigator." In-service workshop, Crime Scene Tech Unit, Lincoln Police Department. October 2008.

"Fly Artifacts, Bug Artifacts and Other Strange Miscellaneous Patterns." Second Bloodstain Pattern Analysis Symposium, Midwest Forensics Resource Center, Iowa State University. August 25-27, 2009.

"Case Management; Shooting Incident Reconstruction; Forensic Photography; Fingerprints; Bloodstains; Serial Number Restoration." Guest Lecturer, Lagos State University, Lagos, Nigeria. October 2009.

"Crime Scene Decision Making for the Bloodstain Pattern Analyst: IR/UV Digital Imaging and Hemascein." International Association of Bloodstain Pattern Analysts Conference, Atlantic City, NJ. October 2010.

"Bloodstains as Evidence." Nebraska Criminal Defense Attorneys Association, Omaha, Nebraska. November 2010.

"Why Use Statement Analysis?" Forensic Linguistic Section, Linguistic Society of America, Minneapolis, MN., January 2014.

"Sequencing Bloodstains." Nebraska Chapter of The International Association for Identification (NEIAI). Mahoney State Park, NE., April 2014
"A Protocol for Discovery of Latent Bloodstains on Dark and Patterned Clothing." Poster Presentation. Nebraska Chapter of The International Association for Identification (NEIAI). Mahoney State Park, April 2014.

"Hair Analysis in Motor Vehicles." Poster Presentation. Nebraska Chapter of The International Association for Identification (NEIAI). Mahoney State Park, April 2016.

Diptera Color Preference at Decomposition Scenes." Poster Presentation. Nebraska Chapter of International Association for Identification (NEIAI). Mahoney State Park, April 2023.

TEACHING / RESEARCH ACTIVITIES

Student Research Projects
- Jennifer Beck. Nebraska Wesleyan University. Bloodstains and Fly Artifacts.
- Lance Beck. Nebraska Wesleyan University. Bug Splatters and Bloodstains Reactions to Luminol and Fluorescein.
- Grace Chang. University of Nebraska. Statistical Analysis of Statement Analysis Makers Relating to Deception.
- Susi Helms. Nebraska Wesleyan University. Stylistic Markers and Serial Killers.
- Katlain Leslie (2009). UCARE funded research. University of Nebraska. Bloodstains Pattern Measurements and Error Rates.
- Taylor Lowis (2009). UCARE funded research. University of Nebraska. Sensitivity of Hemascein to Bloodstains.
- Kelsey Lynch (2013). University of Nebraska. Photogrammetry.
- Martin Matisoff (2012). University of Nebraska. Uncertainty and Bloodstain Analysis.
- Amanda Roe (2009). University of Nebraska. Bloodstains and Fly Behavior.
- Erin Steward (2012). UCARE funded research. University of Nebraska. Root Banding in Human Hair.
- Elizabeth Walsh. Nebraska Wesleyan University. Bloodstains and Hematocrit Levels.
- Kate Schwenke (2014). IAI scholarship funded. A Protocol for Discovery of Latent Bloodstains on Dark and Patterned Clothing.
- Jackie Humrich (2016). UCARE funded research. University of Nebraska-Lincoln. Hair Analysis in Motor Vehicles.
- Tori Hunter (2017), Lincoln High School. Mentored senior research project on developing synthetic blood.
- Amy Douglas (2018), University of Nebraska-Lincoln. Mentored on Honor's Research and Thesis. Analysis of Error Within Forensic Measurements and Photogrammetry Programs.
- Emma Sidel (2019-2021). Independent Study. Forensic Applications of Inset Succession on a Decomposing Corpse. University of Nebraska-Lincoln.
- Haley Fleetwood (2022). UCARE funded research. University of Nebraska-Lincoln. Diptera Color Preference at Decomposition Scenes.

- Erin Bauer, Charles Murrieta. (2022). Entomology Research. Teaching forensic entomology with common grocery items: decomposition and insect succession studies.
- Jordyn Guse. University of Nebraska-Lincoln, Honors Program, research project for Spring 2023. Removal of background and repeated patterns from digital images.

Teaching College Courses
- Introduction to Forensic Science – lecture (undergraduate)
- Introduction to Forensic Science – Lab (undergraduate)
- Forensic Photography (undergraduate and graduate)
- Bloodstains as Evidence (undergraduate and graduate)
- Crime Scene Investigation (undergraduate)
- Advanced Crime Scene Investigation (graduate)
- Crime Scene Management (undergraduate and graduate)
- Comparative Analysis (undergraduate)
- Questioned Documents (undergraduate and graduate)
- Special Issues, Capstone (undergraduate)
- Independent Study (undergraduate)

I have been involved in numerous investigations as an investigator, supervisor, crime scene investigator, crime scene reconstructionist, lab scientist, and consultant. Following is a selection of some of the more involved cases:

K29000: Suicide (Jonathan Moore, victim). The bloodstain patterns were consistent with witness statements but not suspect statements. The manner of death was most likely homicide. I re-investigated this case as a 30-year-old cold case.

95-077549: Homicide (Tina McMenamin, victim). The bloodstain patterns were consistent with knife transfer patterns. Additional research has been done on knife transfer patterns. I testified in court in an evidentiary hearing on bloodstains, crime scene investigation, and bloodstain patterns. I was the case manager of this case and participated in interviewing and arresting the person responsible.

96-035547: Homicide (Arthur Ewoldt, victim). The bloodstain patterns were consistent with cast-off and projected blood. I testified in court regarding crime scene investigation, evidence collection and documentation, criminal investigation, and bloodstain patterns. I located a stone with an unusual pattern that had blood on it. The blood was consistent with that of the victim. I conducted a pattern match with an impression in the dirt to identify the location of the origin of the stone. The stone corroborated the witness statement.

97-109900: Homicide (John Dunagan, victim). The bloodstain patterns were consistent with gunshots, and calculation of the origin was consistent with the discovery position of the victim's body. I measured 70+ bloodstains, calculated impact angles, area of convergence, and area of origin. I was the case manager of this case and participated in the investigation. I did the bloodstain pattern analysis, shooting reconstruction, and crime scene reconstruction.

97-065023 & 97-063436: Homicide (Duane Johnson and Harold Fowler, victims). The bloodstain patterns were consistent with fly artifacts. I have done additional research on fly and bug artifacts. I testified in Federal Court in 2007 on crime scene investigation and bloodstain patterns. This was the case in which fly artifacts mimicked high energy bloodstains. I was the case manager of this case

and participated in the investigation. I did the bloodstain pattern analysis, shooting reconstruction, and crime scene reconstruction.

97-077475: Homicide (Katherine Wyatt, victim). Bloodstain patterns were consistent with witness statements, and a spot on a stick was consistent with dropped blood. This was also consistent with a witness statement. I testified in court on crime scene investigation, follow-up criminal investigation, and bloodstain pattern evidence. I was the case manager of this case and participated in the investigation. I did the bloodstain pattern analysis and crime scene reconstruction.

98-041227: Homicide (Hai Nguyen and Thaosuong Bui, victims). Bloodstain patterns were consistent with mutual combat and mutual assault. I conducted the bloodstain pattern analysis and the crime scene reconstruction.

99-091792: Accidental Death (Roger Zirtman, victim). Bloodstain patterns were consistent with an accidental fall. I conducted a bloodstain pattern analysis.

99-091702: Death (Kenneth Genuchi, victim). Bloodstain patterns would not exclude self-inflicted injuries. Additional research was conducted on bloodstain patterns, and an article published on this research. I was the case manager of this case and participated in the investigation. I did the bloodstain pattern analysis, and crime scene reconstruction.

99-034704: Homicide (Bich Tran, victim). Lack of bloodstain patterns consistent with injury near death or after death. I conducted the bloodstain pattern analysis and crime scene reconstruction.

99-080414: Natural Death (Ray Striker, victim). Bloodstain patterns consistent with fly artifacts, and consistent with natural death. I was the case manager. I did the bloodstain analysis and crime scene reconstruction.

99-087608: (Carole K. Gutzmer, victim). I conducted an investigation in a gun battle between armed assailants and an apartment resident. There were multiple gunshots in two apartments and a mutual hallway, and widespread blood spatter; I did a shooting incident reconstruction and a bloodstain pattern analysis. I testified on both in a deposition. The suspects plead guilty.

99-016902: Homicide (Brandon Pickenpaugh, victim). Bloodstain patterns not sufficient to make conclusion on origin of injury or suspect actions. I testified in court as a qualified witness.

99-102807: Homicide (Scott Tupper, victim). Bloodstain patterns consistent with beating and minimal activity. I was the case manager of this case and participated in interviewing and arresting the person responsible.

A0-012223: Homicide (Vu La, victim). Bloodstain patterns consistent with gunshot. I was the case manager of this case and participated in the investigation. I did the bloodstain pattern analysis, shooting reconstruction, and crime scene reconstruction.

A0-086608: Assault (Joseph Perez, victim). Bloodstain patterns consistent with witness statements.

A0-139917: Homicide (Cheryl Walters). Bloodstain patterns were consistent with near death or death prior to placing of the body. Bloodstain patterns were consistent with transporting the body in the trunk of a vehicle. Fluorescein was used to discover blood in the trunk. I was the case

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manager of this case and participated in the investigation. I did the bloodstain pattern analysis and crime scene reconstruction.

OPS 2001: Homicide (George Bibins, victim). This was an officer involved shooting. The bloodstain patterns and bullet trajectory were consistent with the officer's statement. This involved crime scene reconstruction to include re-enactment, wound analysis, and forensic statement analysis. I was appointed as a special investigator in charge of this case. I testified before a Grand Jury, and I testified at a Federal Government Department of Justice interrogatory.

A1-021167: Homicide (Bennie Cannady). State v. Steven Murray. A Daubert hearing was held regarding bloodstain pattern analysis. Tom Bevel and Erin Sims were allowed to testify on bloodstain pattern analysis in Lancaster County Nebraska District Court. My participation was to review the crime scene reconstruction and bloodstain analysis report by Erin Sims. A procedure in the Lincoln Police Department was to have such reports reviewed and an opinion rendered by a person acting in a capacity as second opinion and peer review person. I was the case manager on this case. I conducted the peer review.

A1-044541: Assault (Neal Ohlman, victim). Bloodstain patterns consistent with witness statements. The pattern on the car hood was a bug splatter. Additional research was conducted to try to distinguish human bloodshed and bloodstain patterns from bug splatters. Lance Beck, Nebraska Wesleyan student, did further research with my guidance on distinguishing bug splatters from blood spatters using Luminol and Fluorescein.

A1-045214: Death (Bernard Mayolo, victim). Blood spatter was consistent with a gun wound and consistent with self-inflicted wound. I was the case manager of this case and participated in the investigation. I did the bloodstain pattern analysis, shooting reconstruction, and crime scene reconstruction.

A1-066329: Death (John Roberts, victim). Bloodstain patterns were consistent with a gunshot wound and with a self-inflicted wound. I was the case manager of this case and participated in the investigation. I did the bloodstain pattern analysis, shooting reconstruction, and crime scene reconstruction.

A1-133102: Accidental Injury (Michael Horbatko, victim). Bloodstain patterns were consistent with an injured caused by an explosive device detonating in the victim's hand. I did the bloodstain pattern analysis and scene reconstruction.

A0-009313: Archer Arms. Homicide. Gunfire was exchanged between the store clerk and the assailant. I was the case manager of this case and participated in the investigation. I did the bloodstain pattern analysis, shooting reconstruction, and crime scene reconstruction. I directed the reconstruction of the shooting incident. This involved an extensive bloodstain analysis, and bullet trajectory analysis. We used the ellipse and stringing method in reconstruction the bullet trajectories.

Forensic Anthropology, Inc., Consultation on Officer Involved Shooting in California (2002): This involved an extensive bloodstain analysis and a shooting incident reconstruction. I discovered information that showed that the reports indicating a wrongful death were in error. The victim had not been shot in the back of the head. This was confirmed by a review by a forensic pathologist.

This review took place after my review. I was retained by Forensic Anthropology as a consultant in a civil case.

A2-0486678: Officer Involved Shooting. I participated in the crime scene investigation of the case. I was the case manager of this case and participated in the investigation. I did the shooting reconstruction, and crime scene reconstruction.

A2-140422: Officer Assault and Officer Involved Shooting. I participated in the crime scene investigation, and testified in court on shooting incident reconstruction and bullet trajectory.

A3-054326: Officer Shooting and in Custody Death. I participated in the crime scene investigation. This involved crime scene reconstruction, bloodstain pattern analysis, shooting incident reconstruction and forensic statement analysis. I testified before a Grand Jury.

A4-043476: Homicide. I participated in the crime scene investigation, implemented the use of digital imaging as a presumptive test for blood, and digital image enhancement as a tool for crime scene reconstruction and bloodstain pattern analysis. I testified in court on bloodstain analysis, crime scene reconstruction, and use of digital imaging as presumptive technique for discovery and enhancement of bloodstains.

Douglas County, Nebraska Case # W78001: I did a consultation for the Douglas County Sheriff's Office on a crime scene reconstruction and bloodstain pattern analysis regarding a cold case on an attempted murder. I wrote a bloodstain analysis and reconstruction report. I used the digital enhancement technique, Invert, to identify and enhance bloodstain patterns.

A4-076384: Assault, Sexual Assault, and Robbery. I consulted with the County Attorney's Office on bloodstain pattern analysis and crime scene reconstruction. I went to the scene and captured digital images of the scene with and without scales.

A4-076385: Homicide (Aurora Murillo). I did a bloodstain pattern analysis including the application of fluorescein. I determined that what were thought to be bloodstains were paint stains. My analysis later was confirmed as accurate on what had taken place in the murder of the victim. The paint stains were mixed with bloodstains and indicated a large volume of bloodshed. In fact, the victim was pushed onto a bed and stabbed with a knife. There was little victim movement.

Douglas County Sheriff's Office, Case # W80767: I did another consultation on bloodstain pattern analysis for the Sheriff's Office. The victim had been found beaten in her residence. In this case I used the photo editing invert technique to enhance the bloodstains patterns. I later wrote an article on the invert function. The article was published in the newsletter of the Evidence Photographers International Council.

A6-012177: I participated in the scene investigation of a stabbing homicide in which the victim ran from an apartment complex to a parking lot before dying from the wounds. I did a bloodstain pattern analysis to show the movement of the victim, and that there was a pursuit by the suspect. I testified in court as a qualified witness.

A6-083519: I did a consultation for the Douglas County Sheriff's Office on the Jessica O'Grady case and their bloodstain pattern analysis efforts. I participated in reviewing the bloodstain pattern analysis and reconstruction report. Stuart James was later hired to testify in court.

A7-0002448: Homicide. I conducted a second opinion review on a bloodstain pattern analysis report.

A7-091468: Death, Natural. This was a decomposition investigation. The front door had been pried, wall shelves were knocked to the floor, a table was broken and overturned, and the victim was unclothed sitting on a couch. The investigation was started as a homicide investigation. I used infrared digital imaging, alternate light source, invert technique, and crime scene reconstruction to come to a conclusion that the death was due to natural causes relating to substance abuse. The bloodstain patterns analysis involved analyzing bloodstains that were determined to be fly artifacts. The infrared digital imaging indicated there were not bloodstains on the navy-blue couch on which the victim rested. I was the case manager of this case and participated in the investigation. I did the bloodstain pattern analysis and crime scene reconstruction.

A7-119776: Death Investigation. I conducted a scene investigation and a bloodstain pattern analysis. The girlfriend was a suspect in the stabbing death of the victim. The bloodstain pattern analysis supported the girlfriend's story and added to the conclusion that the victim self-inflicted the fatal stab wound.

A7-132888: Homicide. I conducted a crime scene investigation using the alternate light source and infrared digital imaging. Previous investigators had said that was no presence of blood at the scene. I and the other investigator discovered blood and were able to corroborate the suspect's story.

A8-006113: Homicide. I did a bloodstain pattern analysis that indicated the victim was put kneeling onto a couch and was shot in an execution style. The suspect pleaded guilty in this case. This was a case of domestic violence. The victim was a female, and the suspect was a boyfriend. I did the bloodstain pattern analysis, shooting reconstruction, and crime scene reconstruction.

LSO A8006258: I provided a second opinion on the bloodstain pattern analysis by Sgt. Sims. I also participated in the scene investigation through standard and infrared digital imaging, bloodstain impression analysis of suspected footprints, application of fluorescein and presumptive blood tests in processing vehicles, and bloodstain analysis and infrared digital imaging in processing evidence and clothing from the scene and/suspect/victim.

A8-093451: In Custody Death. I conducted the crime scene investigation in this TASER related death. I conducted a bloodstain pattern analysis to show that the victim had performed irrational actions by cleaning a knife by wiping on a bed sheet, had shed minimal blood consistent with internal stomach bleeding and consistent with a self-inflicted arm incision. I conducted an investigative analysis and reconstruction of the case and presented information before a Lancaster County Grand Jury. I took Infrared digital images of the scene and the suspect's clothing. These images were part of the bloodstain analysis report. I completed the crime scene using Smart Draw 2009 Legal Edition.

A8-103792: Homicide. I supervised the crime scene investigation, and I completed a bloodstain analysis report for this case. The scene involved a choking, beating, and stomping death of an elderly female. The bloodstain and scene involved several patterns and numerous bloody footwear impressions. I conducted the application of blood protein stains and of fluorescein to enhance stains. I performed an initial comparison of the suspect's footwear and the fluorescein enhanced images to establish that the suspect's footwear could not be eliminated as the source of the bloody

impressions. I directed the application of Infrared photography as a presumptive discovery of blood. I completed the Crime Scene Sketch using Smart Draw 2009 Legal Edition. I also attended the autopsy and did Infrared Digital Imaging and bloodstain analysis relating to bloodstains on the body and pattern injuries on the body. I was able to determine that a suspect shoe could not be excluded as the source of a pattern injury on the victim's body.

A8-107391: Homicide. I was called off duty to go to the scene and assist in the crime scene investigation. Sgt. Donahue was in charge. He said they were to the point that he would like for me to go with him on a walk through, look at the bloodstains and the scene, give him a rough opinion, and let him know of anything else that might need to be done. I pointed out the various blood groups and gave information on what I would like to have done to document the stains. We talked about using fluorescein to discover and enhance any stains. In this case, fluorescein brought out a handprint not otherwise known. I later did a bloodstain analysis report on this case. The victim was killed with an axe. I also attended the autopsy on this case and gathered evidence from the autopsy. I testified in District Court, Jury Trial, on bloodstain analysis. I conducted a microscopic examination of hair and fibers on a club, and an axe, and of the victim.   I testified in court on the bloodstain analysis, hair and fiber analysis, and crime scene reconstruction.

A8-126469: Homicide. I supervised the investigation of the homicide of the infant child victim. I took the digital images of the scene, helped gather the evidence, and helped with the crime scene sketch.

Plattsmouth, Nebraska Police Department (2009): I was asked by Chief Brian Paulson to do a bloodstain pattern analysis of a murder/suicide. The interest was a quality control issue to make sure nothing had been overlooked in the investigation. A report was prepared and sent to Chief Paulson. The report was a crime scene reconstruction report that included bloodstain pattern analysis and shooting incident reconstruction.

A9-012329: Sexual Assault. I assisted in the crime scene investigation and instructed investigators on using the Alternate Light Source and digital imaging. I later re-interviewed the victim's boyfriend, and I used Infrared photography to take images of injuries to the victim. I did an analysis of the handwritten statement of the victim on this case to determine truthfulness of the statement.

John Olsson, Consultant, Wales (2010-2011): I was asked to do a bloodstain analysis and reconstruction for Dr. Olsson on a case in which he had been hired as a consultant. The case involved death of a young female. I wrote a report for him that agreed with the investigating law enforcement determination of the manner of death. Dr. Olsson's client was a Canadian citizen, and the event took place in Florida. The report was a crime scene reconstruction report that included bloodstain pattern analysis and shooting incident reconstruction.

Bellevue Police Department and Sarpy County Sheriff's Office (2011): I was asked to do a bloodstain analysis and reconstruction on a homicide case. I did the analysis and wrote a report. The suspect pleaded guilty in this case. The bloodstains indicated that the victim was shot in the head while near the floor.

B2-073815: Homicide. Joshua Albright was in a self-defense fight after being attacked by Ben Miller. Miller died of sharp force injuries. I reviewed the crime scene information and did a crime scene reconstruction including a bloodstain analysis. I also did a statement analysis for the statement of Joshua Albright. I was subpoenaed by the defense and testified as a defense witness. Joshua Miller

was found not guilty.

Celeste Horsey (2013). I was asked to review this 1981 case and conduct a crime scene investigation. with evidence analysis regarding the death of Celeste Horsey. The request was from family members. I rendered an opinion that the available information supported a suicide manner of death. My opinion agreed with the original investigation.

State v. Nicholas Narlock (2014). Sexual Assault I participated as a LEADDS consultant performing narrative analysis of interviews, crime scene reconstruction, and review of the case file. A plea agreement was reached in this case.

Madison County Nebraska Sheriff's Office (March 2016). I assisted in the examination of human remains. Dr. Baxendale did an entomological examination, Jeri Myers did anthropological examination, I did trace evidence (hair) examination, forensic photography, and documentation. A time since death was established.

Oregon Innocent Project (2016). I reviewed photographs and provided an opinion on bloodstains on the shoe of a victim. I was retained as a consultant by Janis Puracal, Attorney. The issue was the identification of the bloodstain as high energy. In 2019 I was notified that I was going to be subpoenaed for testimony in August 2019. I testified in this case in court in Tillamook, Oregon. I later received information that the person imprisoned had been released from prison.

The Caravan (2017). https://caravanmagazine.in/. (link not active) 2017. I was asked by a reporter for The Caravan to review a case involving an alleged suicide of a judge. The incident took place in India. I reviewed notes, letters, and other documents. I also reviewed autopsy reports. The issue was the authenticity of the author of a letter written by the judge. I concluded that there was not enough information to include or exclude the judge as the author. I referred the reporter to a forensic pathologist for review of the autopsy reports. I opinioned that from a law enforcement investigative perspective I didn't see anything that was not acceptable law enforcement practices in terms of documentation of evidence. I referred the reporter to a forensic linguistic consultant, Dr. John Olsson, for further information on the authorship of the questioned documents.

Sarah Mooney Law Office (2016-2017). I was retained to do a crime scene reconstruction including shooting incident reconstruction and bloodstain pattern analysis on a shooting, attempted murder case, Omaha, Nebraska. I did this and prepared a shooting incident and crime scene reconstruction report. The reconstruction involved going to the scene and taking additional measurements and photographs, reviewing reports, photographs, and videos, doing trajectory calculations, and providing an opinion on the shooter position. I also reviewed audio/video recorded interviews and gave an opinion on the veracity of the interviewee. I was subpoenaed to appear in Douglas County Court. However, the Sunday before court I received a phone call that a plea agreement had been reached on the case.

Jerry Soucie Law Office, 2016-present. I have been retained to consult on a homicide case. This has involved consider field research on bloodstain analysis, bullet trajectories, microscopic analysis of trace evidence, and dynamics of fractured glass distribution patterns. As of 11.16.2018 the case has not been closed. I participated in bloodstain pattern analysis, shooting reconstruction that included research on firearms and bullet behaviors, glass distribution form bullet impact, and trace evidence analysis. A result of the research was that glass impacted from a bullet fired from inside a vehicle will distribute glass in and around the impacted window and not throughout the vehicle.

Nebraska Commission on Public Advocacy, Sarah Newell (2018-2019). I was asked to conduct a crime scene reconstruction of a homicide case in Lexington, Nebraska. At issue was interpretation of bloodstain patterns to establish that the victim was kicked and stomped after being shot and incapacitated. I wrote a report on the reconstruction. I received notice that a plea agreement had been reached on this case.

Stuart Dornan, Attorney (June 2021). I was asked to review a case file and provide an opinion on the crime scene investigation, State v. A. Ascanio. After reviewing the case file and employing the method I use for crime scene reconstruction and analysis, I answered questions from Mr. Dornan and conferred with Mr. Dornan. I provided my observations and opinion. At issue was analysis of bloodstains, swabbing of bloodstain, and DNA analyses of suspected blood. At issue was not swabbing for blood at the scene nor sending in samples for DNA analysis. CSI had not photographed the scene with scales and markers to identify bloodstain patterns and had not taken swabs from bloodstains nor control swabs. It was not possible to conduct a bloodstain pattern analysis or crime scene reconstruction due to lack of information. A plea agreement was reached in the case.

Nebraska Commission on Public Advocacy. State v. Valgora (2020 -2022). I was asked to review a case report and to do original research on Firearm GSR patterns in a folded pillow and noise suppression using a folded pillow. I was also asked to do a crime scene reconstruction of this case. I conducted five field experiments dealing with muzzle to target distances and GSR patterns, and noise measurements. This consisted of discharging firearm once in an open space, twice in a garage, and twice in a residential furnished bedroom. I completed a crime scene reconstruction, including bloodstain pattern analysis and shooting reconstruction, report. In the report I commented on preliminary GSR pattern testing procedures, GSR muzzle to target determinations, shooting incident reconstruction, bloodstain patterns, and manner of death. I participated in several days of depositions and attended a court Daubert hearing. The court ruled I was allowed to testify on bloodstain pattern analysis and crime scene reconstruction. The case was resolved by a plea agreement prior to court ruling on my testimony on gunshot reconstruction involving noise analysis. Sarah Newell was the attorney for the Nebraska Commission on Public Advocacy.

Nebraska Commission on Public Advocacy, Sarpy County, Nebraska Public Defender (2000-2022). State v Clark. Todd West was the attorney for Sarpy County Public Defender's Office. Sarah Newell was the attorney for the Nebraska Commission on Public Advocacy. I was asked to review the case, conduct a crime scene reconstruction, shooting reconstruction, and bloodstain pattern analysis. I prepared a report.   I participated in a day of deposition. In the reconstruction report I commented on manner of death, shooting reconstruction, and bloodstain pattern analysis. A plea agreement was reached on this case.

Nebraska Commission on Public Advocacy (Sarah Newell), Mark Polo, Grand Island. 2022.   Child abuse case involving Sherman County Sheriff's Office. At issue was footwear impressions in dust. I reviewed the case file and went to the scene to do reconstruction work. Mark Polo was the defense attorney, State v Dwyer. I prepared a report. The case was resolved by plea agreement.

Dornan Law Team, Joseph Howard, Omaha, Nebraska, 2023. I was retained as a consultant on a homicide case involving numerous shooters, several injuries including a deceased person, gunshot impressions to several vehicles and buildings. I was asked to conduct crime scene reconstruction including a shooting incident reconstruction. I reviewed the case, visited the original scene, examined a victim vehicle, and met with Omaha Police CSI and Douglas County Attorneys. I provided

a report with my opinion. that there was insufficient information to identify a shooter or shooter location related to the deceased person. I provided information and helped instruct attorneys on analyzing bullet impressions and determining trajectories. I did not testify in this case. The jury found the defendant not guilty. I primarily worked with Joseph Howard, Attorney.

State of Nebraska v. Ashunta Brown. Aaron Smeall, attorney. January 2024. Ashunta Brown, also known as Ashunte Brown, was charged with assault. She shot her boyfriend. She claimed self-defense. I was asked to conduct a crime scene reconstruction. This would include bloodstain pattern analysis and shooting incident reconstruction. I went to the scene and did additional crime scene investigation to include examining material defects in furniture and wall, collecting material samples, taking measurements, and photographs. I prepared a report, but did not testify in court. The report was provided to Aaron Smeall and prosecuting attorney. The case was plea bargained to a misdemeanor.

State of Nebraska v. Walter Alexander. John Hascall, Attorney, Sarpy County Public Defender, March 2024. Walter Alexander was charged with murder. He shot is wife during a domestic disturbance. I was asked to prepare a crime scene reconstruction report. I did this and included bloodstain pattern analysis, shooting incident reconstruction, and review of evidence. I prepared a report that was provided to John Hascall and prosecuting attorneys. I did not testify in court. Walter Alexander was found guilty of manslaughter.

CONTINUING EDUCATION

Specialized Training Courses (non-credit)

Advanced Traffic Accident Investigation Workshop. Lincoln Police Department Annual Training School, 1972.

Analytical Investigation Methods. ANACAPA Sciences, 1978.

Criminal Interrogation. John E. Reid and Associates, 1979.

Narcotics and Dangerous Drugs. U.S. Department of Justice, Drug Enforcement Administration, 1980.

Vehicle Theft. International Association of Auto Theft Investigators, 1980.

Investigation of Homicide, Violent and Suspicious Deaths. Nebraska Sheriff's and Peace Officers Association, 1981.

Evidence, Search and Seizure Laws. Lancaster County Attorney, 1982.

Financial Investigation Techniques. U.S. Department of Treasury, Internal Revenue Service, 1984.

Supervision School. Nebraska Law Enforcement Training Center, 1984.

The Medicolegal Death Investigator Training Course. St. Louis University School of Medicine, 1984.

Arrest and Search Laws. Lincoln City Attorney's Office, 1985.

Sexual Assault Investigations. Federal Bureau of Investigation, 1986.

Advanced Arson Investigation. Denver Fire Department, 1988.

Child Abuse and Exploitation. Nebraska Law Enforcement Training Center, 1989.

Vehicle Theft Investigations. International Association of Auto Theft Investigators, 1989.

Arson/Explosion Scene Investigation. Bureau of Alcohol, Tobacco, and Firearms (ATF), 1990.

Multi-Agency Serial Murder Investigations. Midwest Crime Conference, 1991.

The Kinesic Interview Technique. D. Glenn Foster & Associates, Inc., 1991.

Annual Training Conference. International Association of Auto Theft Investigators, 1992.

Violent Crime Workshop. Bureau of Justice Assistance, 1994.

Instructor Development. Lincoln Police Department, 1995.

Protective Operations Briefing. United States Secret Service, 1995.

Physical Significance of Bloodstain Evidence. Laboratory of Forensic Science, 1996.

Assessment of Violence Potential. Specialized Training Services, 1998.

Crime Scene Reconstruction, Bloodstain Patterns, Forensic Pathology. Southeast Community College, 1998.

Short Course on Crime Scene Archaeology. Federal Bureau of Investigation, 1998.

The Psychopathic Personality. Specialized Training Services, 1998.

Prediction and Management of Violence. Nebraska Consortium for Health Education Programming, 1999.

Shooting Incident Reconstruction. International Training Conference, Association for Crime Scene Reconstruction, 1999.

The LSI Course on Scientific Content Analysis. Laboratory for Scientific Interrogation, 1999.

Violent Crime Sex Offender Threat Assessment. Nebraska State Patrol, 1999.

Chemical Enhancement and Advanced Fingerprint Techniques. Lincoln Police Department, 2000.

Crime Scene Processing Protocol. International Association of Crime Scene Investigators (on-line course), 2000.

Crime Scene Reconstruction. Forensic Anthropology, Inc., 2000.

Crime Scene Reconstruction. Oklahoma Council on Law Enforcement Training, 2000.

Criminal Profiling. Knowledge Solutions (on-line course), 2000.

Instructor Development Academy, Death Investigation, A Guide For the Scene Investigator. National Institute of Justice, 2000.
Mass Disaster Response. International Association for Identification, Nebraska Division, 2000.

Seventh International Homicide Symposium. International Association of Homicide Investigators, 2000.

Wound Ballistic Fundamentals. Knowledge Solutions (on-line course), 2000.

Bloodstain Analysis. International Association for Identification, Nebraska Division, 2001.

Crime Scene Photography. Lincoln Police Department, 2001.

Fluorescein Technique. RC Forensics, Inc., 2001.

Latent Fingerprint History and Advanced Processing Techniques. Lincoln Police Department, June 2001.

Meth Lab Investigations. International Association for Identification, 2001.

Certified Handwriting Analyst. Dr. Erika Karohs. Advanced Studies in Contemporary Graphology, June 2002.

Examination and Recognition of Blood Stained Clothing Workshop. Mike Van Stratton, Kansas Bureau of Investigations, March 2002.

Forensic Light Source Applications. SPEX, Inc., 2002.

Painting with Flash and Available Light Photography. Steve Warlen, March 2002.

Reflected Long Wave Ultraviolet and Infrared Photography. Steve Warlen, March 2002.

The State of the Art of the Science of DNA Identification. Joanna Olson, March 2002.

Philosophy of Language. International Society of Philosophers, 2003.

Mass Fatalities Incident Response Course. Kirkwood Community College, February 2003.

Questioned Documents. American Institute of Applied Science, Inc., April 2003.

Forensic Mapping Using LTI 20-20 & DataPac3d. Lincoln Police Department, June 2003.

Forensic Linguistics Examiner Certificate. Forensic Linguistics Institute, October 2003.

Document Examination. American College of Forensic Examiners, Inc., November 2003.

Digital Imaging of Evidentiary Photography. Federal Bureau of Investigation, March 2004.

WMD: Incident Management/Unified Command. The National Emergency Response & Rescue Training Center, May 2004.

Foundation Course. Masters Programme in Forensic Statement Analysis. QED Limited, Alderney, UK, May 2004.

Introduction to Tire Track Evidence. International Association for Identification. August 2004.

Examination and Comparison of Footwear Impression Evidence. International Association for Identification. August 2004.

Footwear Impression Identification Procedures and Results. International Association for Identification. August 2004.

Night-time Imaging. International Association for Identification, August 2004.

Close-up Imaging Workshop. International Association for Identification, August 2004.

Comparison of Methodology for Crime Scene Survey. International Association for Identification, August 2004.

EPIC 2004 Fall School of Evidence Photography & Imaging. The Evidence Photographers International Council, October 2004.

Handwriting Examiners as Jury and Trial Consultants. American College of Forensic Examiners, 2005.

DNA: Evidence Identification, Collection and Preservation. The Regional Community Policing Institute at Wichita State University, Bellevue, NE, February 1, 2006.

Forensic Entomology. West Virginia University, Forensic Science Initiative, 2007.

Shooting Incident Reconstruction. West Virginia University, Forensic Science Initiative, 2007.

Chemical Spot Testing. West Virginia University, Forensic Science Initiative, 2007.

An Introduction to Forensic DNA Testing. Forensic Training Network, June 23, 2008 (tested).

Forensics at Your Fingertips (fingerprint course). Forensic Training Network, August 2008 (tested).

International Association of Bloodstain Pattern Analysts Conference. 24 hour training on bloodstain evidence and analysis, October 2008.

Backtrack versus Strings. International Association of Bloodstain Pattern Analysts. 4 hours. October 2008.

Collecting DNA Evidence at Property Crime Scenes. President' DNA Initiative. **www.dna.gov**. online, December 11, 2008. (link not active).

Population Genetics and Statistics for Forensic Analysts. President's DNA Initiative. **www.dna.gov**. online, December 15, 2008. (link not active)

Crime Scene and DNA Basics for Forensic Analysts. President's DNA Initiative. **www.dna.gov**. online, December 15, 2008. (link not active)

What Every First Responding Officer Should Know About DNA. President's DNA Initiative, online, **www.dna.gov**. 2008. (link not active)

Introduction to Firearms and Toolmarks. West Virginia University Extended Learning. Continuing & Professional Education Certificate Program, January 9, 2009.

Hair Evaluation for DNA Analysis. West Virginia University Extended Learning, May 4, 2009.

Ethics in Forensic Science. West Virginia University Extended Learning, June 1, 2009.

Forensic Photography. West Virginia University Extended Learning, July 1, 2009.

Modern Polarized Light Microscopy. College of Microscopy (1 week), July 31, 2009.

Second Bloodstain Pattern Analysis Symposium. Midwest Forensics Resource Center, Iowa State University, August 25-27, 2009.

Bloodstain Pattern Analysis. West Virginia University Extended Learning, 2010.

Essential Fingerprint Comparison. Mike Campbell. West Virginia University, Continuing Education for Forensic Professionals Program, Fort Worth, Texas, (3 days), March 2010.

Trace Evidence. College of Microscopy, (1 week). June 2010.

Footwear Examination and Comparison. Dwane Hilderbrand. West Virginia University Continuing Education for Forensic Professionals, Boston, MA, (3 days), August 2010.

Forensic Firearm and Tool Mark Identification with an Introduction to Daubert Issues). Peter Striupaitis. West Virginia University Continuing Education for Forensic Professionals Program, Boston, MA, (3 days), August 2010.

The Science of Fingerprints. West Virginia University Extended Learning, August 23, 2010.

International Association of Bloodstain Pattern Analysts Conference. Atlantic City, NJ, October 2010.

Fiber Identification. Hooke College of Applied Science (1 week), May 20, 2011.

Hair Comparison. Hooke College of Applied Science, (1 week), May 27, 2011.

Forensic Palynology. University of Nebraska. Dr. Karl Reinhard, (1 day), July 27, 2011.

Trace Evidence Symposium. Kansas City, MO. Fiber Contact Traces – Distribution and Persistence, Fracture Match Course, Debating the Merits of Trace Evidence Analysis and Interpretation, Trace Evidence Moving Forward, Soil, Fiber, August 8-11, 2011

Introduction to Forensic Entomology. West Virginia University. Extended Learning, January 2012.

Scanning Electron Microscopy. Hooke College of Applied Sciences, October 2012.

Minimizing Bias in Forensic Decision Making, Concept Professional Training, January 2017.

Error and Uncertainty in Bloodstain Pattern Analysis. forensicED, February 28, 2017.

Bloodborne Pathogens Training for Lab Workers. Environmental Health and Safety, University of Nebraska-Lincoln. January 8, 2017.

Applied Evidence-Based Policing Practices: Homicide and Violent Crime Reduction. Virginia Center for Policing Excellence, May 3-4, 2017.

A Close Look at 3D Microscopy for Firearms Examiners. Forensic Technology Center of Excellence, January 10, 2018.

Leica 3D Crime Scene Mapping Workshop. Nebraska Division of International Association of Identification, April 3-4, 2018.

Small Bloodstains on Textiles – What They Can Tell Us? Forensic Technology Center of Excellence, October 4, 2018.

Variability in Blow-fly Development – Research and Implications for PMI Practice. Forensic Technology Center of Excellence, November 19, 2018.

Bloodstain Pattern Analysis Using FARO Zone. Brenda Butler. FARO. Nebraska Chapter of The International Association for Identification. Mahoney State Park, Nebraska. April 3, 2019.

35th Annual Educational Training Conference. Nebraska Chapter of The International Association for Identification. Mahoney State Park. April 2-3, 2019.

 Intact low explosive analysis. Morehead W.   Forensic Technology Center of Excellence. Webinar, 16 July 2020.

Do you have what it takes to be a fingerprint examiner. 2022. Pattern Test. https://www.nist.gov/quiz/do-you-have-what-it-takes-be-forensic-fingerprint-examiner.

Click 3D Photogrammetry. Liscio E. ai2-3D and 3D Flow. Online, tested. March 14-15, 2023.

Inclusive STEM Teaching Project. Online, April 28, 2023, https://www.inclusivestemteaching.org/. Evaluated and tested.

Bloodborne Pathogens Training for Lab Workers. Environmental Health and Safety, University of Nebraska-Lincoln. December 2023. Tested.

Using Objective Criteria for Bloodstain Pattern Analysis. National Institute of Justice. Online. 1 hour. August 16, 2024.

NRA Instructor, Certified Pistol. The National Rifle Association. Tested, On Site and Online. September 30, 2024.

Academic Courses (credited)

   Advanced Grammar, Fort Hays State College, 1969-1970.
   Introduction to Linguistics, Fort Hays State College, 1969-1970.
   Causes and Control of Riots and Disorders, Sam Houston State University, (graduate), 1975.
   Police and the Community, Sam Houston State University (graduate), 1975.
   Research Methods, Sam Houston State University (graduate), 1975.
   Seminar in Deviant Behavior, Sam Houston State University (graduate), 1975.
   Special Problems of the Young Offender, Sam Houston State University (graduate), 1975.
   Sociology of Violence, University of Nebraska (graduate).
   Public Policy Analysis, University of Nebraska (graduate).
   Research Methods, University of Nebraska (graduate).
   Professional Seminar in Sociological Theory, University of Nebraska (graduate).
   Introduction to Logic, University of Nebraska–Lincoln, 2000.
   Criminal Profiling, Methodist College, 2001.
   Logic and Language, University of Colorado–Denver, 2001.
   Philosophy of Language, International Society of Philosophers, 2002.
   Elements of Statistics, Empire State College, 2004.
   Handwriting Analysis, Canyon College, 2004.
   Applied Chemistry I, Southeast Community College, 2005.
   Applied Chemistry II, Southeast Community College, 2005.
   Biology, Southeast Community College, 2005.
   Intro. to Micro-Organisms, Southeast Community College, 2005.
   Analytical Chemistry I, Southeast Community College, 2006.
   Analytical Chemistry II, Southeast Community College, 2006.
   Analytical Chemistry III, Southeast Community College, 2006.
   Botany, Southeast Community College, 2006.
   Anatomy and Physiology, Southeast Community College, 2006.
   College Algebra, Southeast Community College, 2006.
   Organic Chemistry, Southeast Community College, 2006.
   Quality Control in the Lab, Southeast Community College, 2006.
   Pre-Calculus, Southeast Community College, 2007.
   Structure and Function of the Human Body, Southeast Community College, 2007.
   Trigonometry, Southeast Community College, 2007.
   Pollen Analysis, University of Nebraska-Lincoln, 2013.
   Taphonomy, University of Nebraska-Lincoln, 2013.
   Insect Biology, University of Nebraska, -Lincoln2014.
   Insect Identification, University of Nebraska-Lincoln, 2014.
   Forensic Entomology, University of Nebraska-Lincoln, 2016.
   Peer Review of Teaching Project. Univeristy of Nebraska, 2019 – 2020. Published paper.

Bayesian Statistics: From Concept to Data Analysis. University of California Santa Cruz.   May 2021.

ORGANIZATIONAL CITIZENSHIP
- American College of Forensic Examiners, **Editorial Review Committee, 2006-2010.**
- Forensic Training Network. Online Training Modules, NIJ Grant Funded, **Subject Matter Expert, Consultant, 2009–2014**.
    - CSI-01: Principles and Thought Process of Crime Scene Investigation.
    - CSI-02: Power and Processing of Crime Scene Evidence.
    - CSI-03: Forensic Photography, Basic Concepts and Applications.
- International Association for Identification, Nebraska Division, **Board of Directors, 2001–2006; President, 2006–2008**.
- International Association of Auto Theft Investigators, **Board of Directors, 1981–1988**; **Program Director for Annual Training Conference, 1985**; **President, 1989.**
- International Crime Scene Investigators Association, **Board of Directors, 2001–2007**.
- The Association for Linguistic Evidence, TALE**, Board of Directors, 2012 – 2018**